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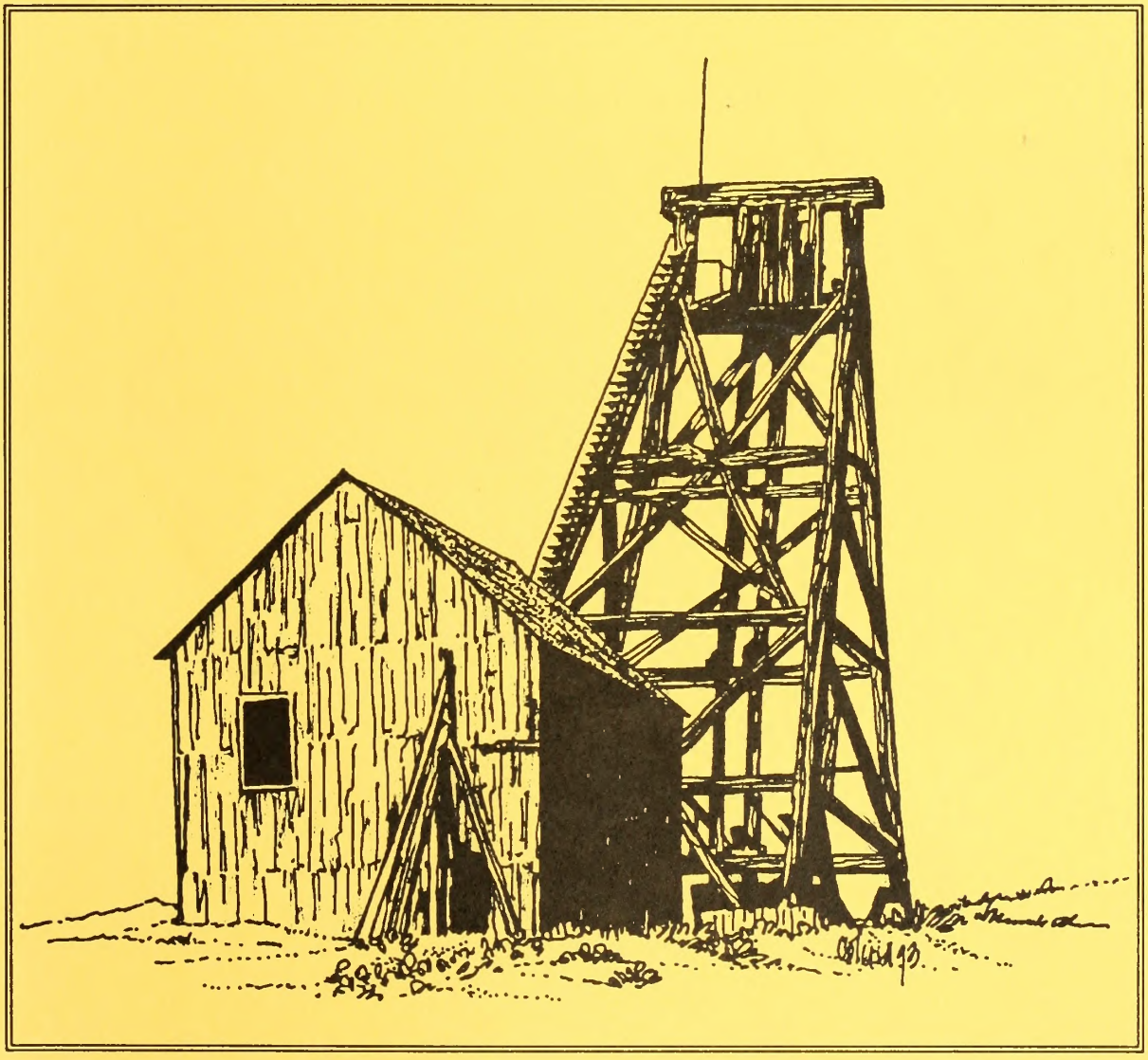
Tonopah Resource Management Plan and Environmental Impact Statement



MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific and cultural values.

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June 4, 1993

Dear Reader,

Enclosed for your review and comment is the Draft Tonopah Resource Management Plan (RMP) and Environmental Impact Statement (EIS) for the management of 6.1 million acres of public lands administered by the Tonopah Resource Area of the Bureau of Land Management (BLM). These lands are located in Nye and Esmeralda Counties, Nevada. This document is the first in the process for the development of an Approved Plan for this area. It was prepared to meet the requirements of the Federal Land Policy and Management Act of 1976 and the National Environmental Policy Act of 1969. Four alternatives are analyzed, including a No Action Alternative. The document is expected to provide management guidance to the BLM over the next 20 years.

Public meetings will be held for the purpose of discussion and receiving oral comments on this draft plan. Meeting dates and locations are as follows:

August 17, 1993	BLM Conference Room, 1535 Hot Springs Road, Suite 300, Carson City, Nevada.
August 19, 1993	BLM Conference Room, 4765 Vegas Drive, Las Vegas, Nevada,
August 24, 1993	Beatty Community Center, Beatty, Nevada.
August 25, 1993	Goldfield Community Center, Corner of Crook and Euclid, Goldfield, Nevada.
August 26, 1993	Tonopah Convention Center, 301 Brougher, Tonopah, Nevada.

All meetings will start at 7:00 p.m. A time limit may be placed on oral comments depending on the number of people who wish to make a statement. Oral comments should be accompanied by a written synopsis of the presentation. All comments, written or oral, received during the 90 day comment period that pertain to the scope of this draft RMP will be considered and evaluated in preparation of the Proposed RMP and Final EIS.

Written comments should be marked "RMP Comments" and are to be sent to: Bureau of Land Management, Tonopah Resource Area Manager, P.O. Box 911, Tonopah, Nevada 89049. Written comments must be postmarked no later than October 1, 1993 to be considered in the preparation of the Proposed RMP and Final EIS. For further information, contact the Tonopah Area Manager at Building 102, Military Circle, Tonopah, Nevada or telephone (702) 482-7800.

Sincerely,

Billy R. Templeton

Billy R. Templeton
State Director, Nevada

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TONOPAH RESOURCE MANAGEMENT PLAN AND ENVIRONMENTAL IMPACT STATEMENT

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Prepared By
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
BATTLE MOUNTAIN DISTRICT

Billy R. Templeton

Billy R. Templeton
State Director, Nevada

This Draft Tonopah Resource Management Plan and Environmental Impact Statement is one of the first steps in developing a "Resource Management Plan" to provide management direction for 6.1 million acres of public lands administered by the Bureau of Land Management located in Nye and Esmeralda Counties, Nevada. The planning area encompasses the entire Tonopah Resource Area. This planning effort was begun to consolidate two existing management plans into one comprehensive plan; to provide for compatible decisions and continuity of managerial direction; to update management direction for several important resources, particularly hardrock and fluid minerals, sensitive plant and animal species, lands and rights-of-way needs, and cultural resources; and to respond to rapidly changing public uses and demands. This draft plan examines four alternatives, including the No Action Alternative. It is expected to provide management guidance to the BLM over the next 20 years.

All written comments concerning the issues discussed in this draft plan must be submitted to the Tonopah Area Manager at the above address and must be postmarked by October 1, 1993.

For further information contact: Tonopah Area Manager, P.O. Box 911, Building 102, Military Circle, Tonopah, Nevada 89049, or telephone (702) 482-7800.

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SUMMARY

SUMMARY

Four multiple-use alternatives for the management of public lands in the Tonopah Resource Area have been developed and analyzed in accordance with the Federal Land Policy and Management Act of 1976.

The alternatives respond to major planning issues identified through the public participation and planning process. They include levels of management in wild horse/burro management areas, identification of special management areas, management of off-highway vehicle use, management in wilderness study areas released by Congress for multiple-use purposes, identification of preferred routes for utility corridors, and mineral exploration and development.

Each alternative is a complete plan that provides for the multiple-use management of 6,091,101 acres of public lands in the Tonopah Resource Area.

Alternative No.1 Theme: This is the No Action Alternative. Management is a continuation of the current level and systems of resource use as described in the Tonopah Management Framework Plan and the Esmeralda-Southern Nye RMP. These plans contain a full array of multiple resource uses. However, because some resources and uses were not articulated in those plans, some of the management direction that is assumed for the No Action alternative was derived by extrapolating from past management actions.

Alternative No. 2 Theme: This alternative provides opportunities for private economic development and economic diversity through utilization of a wide range of resources. Lands will be made available for expansion and development while providing mitigation to sensitive resource values.

Alternative No. 3 Theme: This alternative provides for private economic development and economic diversity which is constrained by environmental safeguards designed for the preservation and enhancement of environmental systems and for species diversity.

Alternative No. 4 Theme: This is the preferred alternative. This alternative provides for the development of renewable and non-renewable resources while ensuring the preservation and enhancement of fragile and unique resources.

The anticipated impacts of the four alternatives have been comprehensively analyzed. The impacts are described in Chapter 4 and summarized in this summary section.

TABLE S A
RESOLUTION OF ISSUES BY ALTERNATIVES

ISSUE	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Wild Horse and Burro Management	Management of wild horses and burros will provide for a full array of multiple uses consistent with ensuring a thriving natural ecological balance.	Management of wild horses and burros will provide for a full array of multiple uses consistent with ensuring a thriving natural ecological balance.	Wild horses and burros will be managed in order to ensure a natural thriving ecological balance and to enhance or preserve natural systems and the habitat in herd management areas.	Wild horses and burros will be managed in order to ensure a natural thriving ecological balance consistent with the principles of multiple-use. The conditions in herd management areas will be improved through the development of water resources.
Special Management Areas	There are no areas of critical environmental concern (ACEC) designated in the resource area. Management of sensitive resources is handled on a case-by-case basis using the principles of multiple-use and sustained yield, and guided by the concept of wise stewardship.	Formal designation as an ACEC is used when there is little controversy regarding the management or protection of sensitive resources. As a result two ACECs will be designated.	The protection of sensitive resource values will be accomplished through the formal designation of ACECs. As a result 10 ACECs will be designated.	The protection of sensitive resource values will be accomplished through the formal designation of 7 ACECs.
Off-Highway Vehicle (OHV) Use	There are 5,141,091 acres open to OHV use, 10 acres are closed, and 950,000 acres that have limitations on OHV use.	There will be 5,984,621 acres open to OHV use. OHV use is recognized as a legitimate use of the public lands which contributes to the local economy. No areas will be closed except as required by law or policy. Limitations will apply on 106,480 acres.	There will be 2,175,755 acres open to OHV use. In order to avoid impacts to sensitive resources, 430,290 acres will be closed to OHV use, and OHV use will be limited on 3,485,056 acres.	There will be 4,840,811 acres open to OHV use. To avoid or minimize impacts to sensitive resources, 430,290 acres will be closed to OHV use, and OHV use will be limited on 820,000 acres.
Wilderness Study Areas (WSAs) Returned to Multiple-Use	All WSAs released by Congress for multiple-uses will be open to the full array of multiple-uses with all the protection provided by law.	Management of WSAs returned by Congress for multiple-uses will encourage consumptive use in areas with potential to produce goods or services.	Management of those WSAs returned by Congress for multiple-uses will provide for the management and preservation values in primitive and semi-primitive areas while allowing for a limited amount of consumptive uses.	Management of WSAs returned by Congress for multiple-uses will provide for the protection of primitive and semi-primitive values. Resource development will be allowed, but upon completion of development areas will be reclaimed to resemble a natural state.

TABLE S A
RESOLUTION OF ISSUES BY ALTERNATIVES

ISSUE	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4
Utility Corridors	This alternative does not fully resolve this issue. A total of 326 miles of utility transmission corridors are identified in the Esmeralda-Southern Nye RMP. In the Tonopah MFP each application for a major utility right-of-way will be considered on a case-by-case basis.	A total of 668 miles of utility corridors will be designated in areas where industry has indicated a need for electric transmission lines to join corridors in adjoining jurisdictions. these corridors will provide for both north-south and east-west routing, in addition to multiple line siting capability. Pipelines will also follow these routes.	A total of 500 miles of utility corridors will be designated. Those alignments that avoid impacts upon sensitive resources have been selected. This selection provides for north-south routing but not east-west routing. Pipelines will also follow these routes.	A total of 668 miles of utility corridors will be designated in areas where industry has indicated a need for electric transmission lines to join corridors in adjoining jurisdictions. These corridors will provide for both north-south and east-west routing, in addition to multiple line siting capability. Pipelines will also follow these routes.
Mineral Exploration and Development	Multiple use problems are solved on a case-by-case basis except in areas closed to mineral leasing or withdrawn from mineral entry.	Management will provide for mineral exploration and development with the least restrictions necessary to protect key resources, and to prevent undue or unnecessary degradation of the environment.	Management will provide for limitations to mineral exploration and development in order to protect and enhance natural systems, in addition to preventing undue and unnecessary degradation of the environment.	Management will provide for mineral exploration and development in those areas open to leasing or location while providing for the preservation and enhancement of fragile and unique resources, in addition to preventing undue and unnecessary degradation of the environment.

TABLE S B
SUMMARY OF IMPACTS BY ALTERNATIVE

RESOURCES IMPACTED	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 PREFERRED ACTION
Visual Resources	Class I; 400 acres. Class II; 686,500 acres. Class III; 1,235,000 acres. Class IV; 1,510,400 acras. Unidentified; 2,658,801 acres.	Class I; 0 acres. Class II; 2,560 acres. Class III; 133,000 acres. Class IV; 5,955,541 acres.	Class I; 0 acras. Class II; 597,000 acres. Class III; 90,000 acres. Class IV; 5,404,101 acras.	Class I; 0 acras. Class II; 469,170 acres. Class III; 218,000 acres. Class IV; 5,403,931 acres.
Wildlife	Habitat would benefit from implementation of the findings of tha rangeland monitoring and evaluation program. Wildlife could be adversely impacted on 72,640 acres of important habitat by land disposal and discretionary land use authorizations.	Habitat would benefit from implementation of the findings of the rangeland monitoring and evaluation program. Wildlife could be adversely impacted on 20,720 acres of important habitat by land disposal and discretionary land use authorizations.	Habitat would benefit from implementation of tha findings of the rangeland monitoring and evaluation program. Wildlife would benefit from the protaction of 72,640 acres of important habitat from land disposal and land use authorizations.	Habitat would benefit from implamantation of tha findings of tha rangeland monitoring and avaluation program. Wildlife would benefit from tha protection of 72,640 acras of important habitat from land disposal and land usa authorizations.
Special Status Species	Railroad Valley springfish habitat would be protected from mineral leasing and livestock use. Amargosa toad and Oasis Valley speckled dace habitat would continue to be adversely impacted by casual OHV use and mineral location. Non-Intensive Category III desert tortoise habitat would continue to be adversely impactad by OHV use in washes.	Railroad Valley springfish habitat would be protected from mineral leasing, land use authorizations and livestock usa. Amargosa toad and Oasis Valley speckled dace habitat would be adversely protected from casual OHV use and but could be adversely impacted by mineral location. Non-Intensiva Category III desert tortoise habitat would continua to ba adversely impacted by OHV usa in washes.	Railroad Valley springfish habitat would ba designated as an ACEC and protected from mineral laasing, land use authorizations and livestock usa. Amargosa toad and Oasis Vallay speckled daca habitat would ba designatad as an ACEC and protectad from OHV use, use authorizations and minaral location. Non-Intansiva Category III desert tortoisa habitat would ba protactad by limiting OHV usa.	Railroad Valley springfish habitat would ba designatad as an ACEC, protected from minaral laasing, land usa authorizations and livastock use. Amargosa toad and Oasis Valley spackled daca habitat would be designated as an ACEC, protactad from OHV usa, use authorizations, and mineral location. Non-Intansiva Category III dasart tortoisa habitat would ba protected by limiting OHV usa to axisting roads and trails.

TABLE S B
SUMMARY OF IMPACTS BY ALTERNATIVE

RESOURCES IMPACTED	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 PREFERRED ACTION
Riparian Habitats	Streamside riparian areas would continue to be impacted by livestock grazing but would benefit as grazing management is implemented on 13 miles of stream.	Streamside riparian areas would continue to be impacted by livestock grazing but would benefit as grazing management is implemented on 13 miles of stream.	Streamside riparian areas would continue to be impacted by livestock grazing but would benefit as grazing management is implemented on 33.3 miles of stream.	Streamside riparian areas would continue to be impacted by livestock grazing but would benefit as grazing management is implemented on 33.3 miles of stream.
Forestry and Vegetation Products	Firewood would be harvested from 9,380 acres.	Firewood would be harvested from 15,100 acres with an annual cut of 1,500 cords.	Firewood would be harvested from 10,300 acres with an annual cut of 1,000 cords.	Firewood would be harvested from 11,850 acres with an annual cut of 1,000 cords.
Grazing Management	The initial stocking level for livestock would be 162,766 AUMs. Livestock would be restricted or excluded from 12,026 acres.	The initial stocking level for livestock would be 162,766 AUMs. Livestock would be restricted or excluded from 11,444 acres.	The initial stocking level for livestock would be 162,766 AUMs. Livestock would be restricted or excluded from 23,538 acres.	The initial stocking level for livestock would be 162,766 AUMs. Livestock would be restricted or excluded from 12,163 acres.
Wild Horse and Burro Management	The initial herd size for wild horses and burros would be 1,776 horses and 323 burros in 16 Herd Management Areas. There are 4,680 acres in HMAs identified for disposal.	The initial herd size for wild horses and burros would be 1,776 horses and 323 burros in 16 Herd Management Areas. There are 66,000 acres in HMAs identified for disposal.	The initial herd size for wild horses and burros would be 1,776 horses and 323 burros in 16 Herd Management Areas. No lands would be disposed of in HMAs. Wild horses/burros would benefit from vehicle use being restricted to existing roads and trails, protection of water sources from land use authorizations and protection from mineral activities.	The initial herd size for wild horses and burros would be 1,776 horses and 323 burros in 16 Herd Management Areas. There are 66,000 acres of land available for disposal in HMAs but only if wild horses/burros are not adversely impacted. Two important waters would be protected from OHV events.
Cultural Resources	Impacts on cultural resources would be avoided through Standard Operating Procedures.	Impacts on cultural resources would be avoided through Standard Operating Procedures.	Impacts on cultural resources would be avoided through Standard Operating Procedures. Cultural resources would benefit from the designation of five ACECs and restrictions on mineral development and exploration.	Impacts on cultural resources would be avoided through Standard Operating Procedures. Cultural resources would benefit from the designation of three ACECs and restrictions on mineral exploration and development.

TABLE S B
SUMMARY OF IMPACTS BY ALTERNATIVE

RESOURCES IMPACTED	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 PREFERRED ACTION
Lands end Rights-of-Way	Only 59,082 acres would be identified for disposal. Community expansion at Tonopah, Round Mountain, Silver Peak, and Beatty would be restricted. Disposals would be allowed within the Amargosa-Oasis area and in Rhyolite.	A total of 363,000 acres would be identified for disposal. Lands could be disposed of within the Amargosa-Oasis area. However, disposals in the Rhyolite area could be made only under the R&PP Act. There would be no acquisitions in Rhyolite. There would be 15 acres of right-of-wey exclusion areas and 71,820 acres of right-of-way avoidence areas.	Only 40,662 acres would be identified for disposel. There would be no land disposals within wild horse and burro herd management arees. This would restrict community expansion in Goldfield, Lida, Fish Lake Valley, end Beatty. There would be 48,080 acres of right-of-way exclusion areas and 711,270 acres of right-of-way evoidance erees. No additional sites for communication facilities would be allowed.	Less than 300,000 acres would be available for disposal. There would be more than 241,041 acres of right-of-way evoidance arees, but no right-of-way exclusion areas. Amargosa-Oasis would be an evoidance eree. No new roads to communication sites would be authorized.
Areas of Criticel Environmental Concern	No ACECs would be designated.	The following ACECs would be designated: Lunar Crater 2,560 acres. Lone Mountain 14,400 acres.	The following ACECs would be designated. Luner Crater 39,680 acres. Timber Mountain 7,040 ecres. Amergosa-Oasis 490 acres. Cane Man Hill 680 ecres. Lone Mountein 14,400 acres. Railroad Valley 15,470 acres. Rhyolite 460 acres. Stormy Abel 12,320 ecres. Trap Springs 8,480 ecres. Tybo-McIntyre 80 acres.	The following ACECs would be designated. Luner Crater 39,680 acres. Amargosa-Oasis 490 acres. Cane Man Hill 680 ecres. Lone Mountain 14,400 ecres. Reilroad Valley 15,470 acres. Rhyolite 61 acres. Tybo-McIntyre 80 ecres.
Recreetion	Vehicle use would not be restricted on 84% of the resource area.	Vehicle use would not be restricted on 98% of the resource area. Recreetion would be encouraged on 26,510 ecres of Speciel Recreetion Management Arees (SRMAs) end two Back-Country By-Weys.	Vehicle use would not be restricted on 36% of the resource erea. Recreetion would be encouraged on 64,850 ecres of SRMAs end three Back-Country By-Weys. Areas heving primitive and semi-primitive non-motorized velues would be protected from minerel development and OHV use.	Vehicle use would not be restricted on 79% of the resource area. Recreation would be encoureged on 64,451 acres of SRMAs and three Beck-Country By-Weys. Areas having primitive and semi-primitive values would be protected from OHV use.

TABLE S B
SUMMARY OF IMPACTS BY ALTERNATIVE

RESOURCES IMPACTED	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 PREFERRED ACTION
Fluid Minerals	A total of 98.5 percent of the resource area would be open to mineral leasing under standard terms and conditions: closed, 58,244 acres; no surface occupancy, 3,960 acres; seasonal restrictions, 28,760 acres.	A total of 99.0 percent of the resource area would be open to mineral leasing under standard terms and conditions: closed, 3,264 acres; no surface occupancy, 2,720 acres; seasonal restrictions, 55,000 acres.	A total of 89.1 percent of the resource area would be open to mineral leasing under standard terms and conditions: closed, 454,700 acres; no surface occupancy, 158,000 acres; seasonal restrictions, 50,400 acres.	A total of 98.3 percent of the resource area would be open to mineral leasing under standard terms and conditions: closed, 3,264 acres; no surface occupancy, 53,801 acres; seasonal restrictions, 49,000 acres.
Locatable Minerals	A total of 99.2 percent of the resource area would be open to mineral entry.	A total of 99.0 percent of the resource area would be open to mineral entry.	A total of 90.4 percent of the resource area would be open to mineral entry.	A total of 98.8 percent of the resource area would be open to mineral entry.

CHAPTER 1

INTRODUCTION

CHAPTER 1

INTRODUCTION

Purpose and Need

The purpose of the *Tonopah Resource Management Plan* (RMP) is to provide the Bureau of Land Management (BLM) direction to manage its natural resources in the Tonopah Resource Area.

This Draft Resource Management Plan/Draft Environmental Impact Statement (DRMP/DEIS) is prepared in accordance with the Federal Land Policy and Management Act, National Environmental Policy Act, and the Council on Environmental Quality regulations (40 CFR 1500), and BLM's planning regulations (43 CFR 1600).

The need for a new plan became evident as a result of a monitoring evaluation conducted in 1989 of the *Tonopah Management Framework Plan* (MFP) (1981) and the *Esmeralda-Southern Nye RMP* (1986). The conclusion of the monitoring is summarized as follows:

Management of the resource area is currently guided by two existing land use plans: the *Tonopah MFP* and the *Esmeralda-Southern Nye RMP*. Consolidated, these two plans will comprise a single, multiple-use, comprehensive document capable of providing guidance for making sound decisions for the variety of land uses encompassed within the resource area. Combining the two planning areas provides for compatible decisions and continuity of managerial direction throughout the resource area.

During evaluation of the *Tonopah MFP* it became evident that a combination of expanding resource development and changes in management direction had rendered the document inadequate for long-term management guidance of many resources, in particular, minerals, realty, and woodland products. A review of the *Esmeralda-Southern Nye RMP* reflected a similar situation.

Moreover, a Bureau mandate to amend land use plans for fluid minerals indicated a need to prepare an RMP covering the entire resource area.

General Location and Geography

The resource area is within Nye County and Esmeralda County in the State of Nevada. The boundary of the planning area is the same as the resource area boundary (See maps 1 & 2).

The planning area totals approximately 6,091,101 acres of public lands administered by the BLM.

The resource area is typical of the Great Basin geographical province. It has north-south trending mountain ranges separated by wide internally drained basins. The vegetation varies between the northern cold desert, the Mojave Desert, and the environmental ecotype between the two areas. Elevations range between 3,200 feet in the south to 9,561 feet in the northeast.

Relationship to BLM Policies, Plans, and Programs

This planning effort is in conformance with *Bureau Manual 1620, Supplemental Program Guidance* which identifies the program-specific determinations that are usually made during resource management planning.

There are four existing environmental impact statements (EISs) covering actions in the resource area.

1. The *Tonopah Livestock Grazing EIS* was released in 1981. This document covers the Tonopah MFP. The first *Rangeland Program Summary* (RPS) was signed in February, 1983. A rangeland monitoring program has been implemented and use adjustments have been proposed based on monitoring data and guidance provided in the Tonopah Management Framework Plan. The on-going monitoring and evaluation program continues to provide adequate

managerial guidance. Therefore the Tonopah RMP/EIS does not address the allocation of forage beyond that which currently exists.

2. The *Esmeralda-Southern Nye RMP/EIS* was released in November, 1984 and the *Record of Decision (ROD)* was issued in October, 1986. The *Esmeralda-Southern Nye RPS* was issued in September, 1987 initiating a monitoring and evaluation program which provides adequate managerial guidance for the livestock grazing program.

3. The *Tonopah Wilderness Recommendations Final EIS* was released in 1987. The *Nevada State-wide Wilderness Report* contains recommendations regarding management of wilderness on 483,050 acres of public land in northern Nye county. These recommendations to Congress are not analyzed in this RMP/EIS.

4. The *Esmeralda-Southern Nye Wilderness Final EIS* was released in 1987. The *Nevada State-wide Wilderness Report* contains wilderness recommendations on 189,675 acres of public land in southern Nye and Esmeralda counties. These recommendations to Congress are not analyzed in this RMP/EIS.

Relationship to BLM and Other Policies, Plans, and Programs

The resource area borders four BLM districts (Carson City, Las Vegas, Ely, and California Desert), as well as the Shoshone-Eureka Resource Area of the Battle Mountain District. Other federal lands within the planning area include three National Forests (Toiyabe, Humboldt, and Inyo), as well as Death Valley National Monument. This document has been coordinated with existing land-use plans on adjoining areas to ensure consistency to the extent possible.

This Draft RMP has been developed involving members of the Public, particularly in both Nye and Esmeralda Counties. It has been coordinated with the existing plans of both counties. Where conflicting direction involving the management of public lands occur between this plan and those of each respective county, this RMP will comply with the laws and statutes enacted by Congress to protect the interests of the citizens of the United States.

Planning Process Overview

The resource management planning process is described in detail in BLM planning regulations 43 CFR 1600 and 40 CFR 1500. The Notice of Intent to prepare the Tonopah RMP/EIS and a notice of scoping period for the public to participate in the identification of planning issues, review of planning criteria, and formulation of alternatives for the Tonopah RMP was published in the Federal Register/Volume 55, Number 29/Monday, February 12, 1990. The planning process involves the following nine basic steps:

Step 1: Identification of Issues:

Planning issues are concerns or controversies about existing and potential land and resource allocation such as levels of resource use, production and protection, and related management practices. Based on public comment during the scoping process in March, 1990, six Issues were identified for the Tonopah RMP/EIS:

1. Determine what intensity of management should be implemented in Wild Horse and Burro Herd Management Areas to ensure that there is a natural thriving ecological balance consistent with other resource values.

2. Determine if any lands should be given special management consideration in order to protect high resource values.

3. Determine if any lands should be limited or closed to the use of off-highway vehicle use.

4. Determine what management objectives should be established for those wilderness study areas released by Congress for non-wilderness, multiple-use purposes.

5. Determine which lands within the resource area should be identified as preferred routes for utility corridor locations to minimize conflicts with other resource values.

6. Determine if any lands should be closed to the leasing or location of minerals, and what terms, conditions, or other special considerations should apply in order to prevent unnecessary or undue degradation of the public land, on those lands which are not closed.

Step 2: Development of Planning Criteria:

Planning criteria establish constraints and guides for planning purposes. They state what will, or will not, be done during the planning process. Based on Bureau guidelines and on public comments received during the scoping process in March, 1990, the following planning criteria will be used in the development of the Tonopah RMP/EIS:

1. All decisions from previous land-use plans which represent valid existing management are included in the Tonopah RMP/EIS.

2. The RMP/EIS does not address the allocation of forage beyond the determinations given in planning documents in force in 1991. The current monitoring, evaluation, and adjustment program continues to provide adequate managerial guidance.

3. Management of Wilderness Study Areas (WSAs) will continue under the *Interim Management Policy for Lands Under Wilderness Review*. Should all or part of any WSA be released by Congress from wilderness study, resource management would come under the scope of this Tonopah RMP/EIS. Those areas designated by Congress as Wilderness will be managed in accordance with the Wilderness Act and the specific enabling legislation requirements. A Wilderness Management Plan detailing management objectives and actions for all resources will be prepared for each area after designation.

4. Give priority to the designation of areas of critical environmental concern (ACEC).

5. Rely on the existing inventory and studies of the public lands, their resources, and other values.

6. To the extent possible, coordinate land-use inventory, planning, and management programs of other Federal agencies and State and local governments.

7. Prepare reasonably foreseeable development scenarios based on existing levels of mineral development and at least one alternative addressing a higher level of mineral development. A scenario of lower mineral development than that which currently exists will not be developed.

8. Consider the management prescription on adjoining lands in order to minimize inconsistent management, especially in regard to the identification of corridors.

9. The lands covered in the RMP/EIS are the public lands within the boundaries of the resource area. Determinations will not be made for lands in adjoining districts.

10. No specific determinations will be made on coal resources due to the poor quality, marginal occurrence and lack of expressed interest.

In addition to the above planning criteria, the following requirements from BLM Manuals or

other regulations, will also be used to guide the development of the RMP/EIS.

1. Use and observe the principles of multiple-use and sustained yield.

2. Use an interdisciplinary approach in order to integrate consideration of physical and biological science and economics.

3. Consider current and potential uses of the public lands.

4. Weigh long-term benefits to the public against short-term benefits.

5. Section 302(b) of FLPMA requires the Secretary of the Interior to manage the public lands to prevent unnecessary or undue degradation of the lands.

6. BLM 1620 Manual, Supplemental Program Guidance, will be used to identify resource condition objectives, land-use allocations, and management direction determinations that will be made in this RMP.

7. Comply with all pertinent public land laws, policies, and directions.

Step 3: Inventory and Data Collection:

This planning effort relies on existing inventories and studies of the public lands from previous planning documents, previous EISs, resource program data, monitoring and evaluation of on-going programs, and data from other governmental agencies and individuals.

Step 4: Analysis of the Management Situation (AMS):

The AMS describes current BLM management direction. It includes a description of environmental factors and data needed to analyze and resolve the identified issues and to make determinations in regard to Supplemental Program Guidance. The AMS provides the analysis of resource capabilities and management opportunities needed to formulate alternatives.

Step 5: Formulation of Alternatives:

Several alternatives have been developed to resolve issues and management concerns, to make determinations in regard to Supplemental Program Guidance, and to address ways in which to avoid or mitigate adverse impacts which were not adequately addressed in previous land-use plans. Current management guidance from existing land-use plans is described in the No Action Alternative.

Step 6: Estimation of Effects of Alternatives:

The potential impacts and changes that would occur to the physical, biological, social, and economic environments by implementing each of the alternatives are analyzed.

Step 7: Selection of the Preferred Alternative

This alternative was generated in order to resolve issues in a balanced manner. It provides for the development of resources, while protecting or enhancing environmental values. It consists of elements from other alternatives which have been modified to best meet the multiple-use demands in the resource area.

After the of the preferred alternative, the Tonopah DRMP/DEIS is then distributed to the public, including other government agencies and interest groups, for a 90-day comment period.

Step 8: Selection of the Resource Management Plan:

Following completion of the period for public review and comment on the Tonopah DRMP/DEIS, the Battle Mountain District Manager will recommend a proposed plan to the Nevada State Director for approval. The proposed plan may retain the preferred alternative or, based on the comments received during the review of the DRMP/DEIS, the preferred alternative may be modified or a different alternative may be selected.

The Proposed Resource Management Plan/Final EIS (PRMP/FEIS) will be sent to the Governor of the State of Nevada for a 60-day consistency review, allowing the State to determine whether the PRMP/FEIS is consistent with State and local government plans and policies.

The PRMP/FEIS is filed with the Environmental Protection Agency and a 30-day protest period begins. If no protests are received during this time, the State Director will approve the plan and publish a Record of Decision.

Step 9: Monitoring and Evaluation:

A monitoring and evaluation schedule and set of standards will be established in order to: 1) track implementation of decisions, 2) help keep the plan current, 3) determine if the objectives for the management of the resources are being met, and 4) assess whether the RMP continues to reflect the best resource management decisions. Periodic reviews will be scheduled at least once every five years.

CHAPTER 2

ALTERNATIVES

CHAPTER 2

DESCRIPTION OF ALTERNATIVES

INTRODUCTION

Four alternatives are considered in detail in this draft RMP/EIS. The alternatives were formulated specifically to respond to the planning issues identified at the beginning of the planning process and to the BLM's program guidance. No single alternative satisfies all of the planning concerns expressed. However, the alternatives have addressed the concerns in a variety of ways.

Alternatives were formulated within the following constraints:

All alternatives are legally feasible and technically possible. The alternatives present a balance between the legal requirements to protect, restore, and enhance natural resource values and the need to produce food, fiber, minerals and services.

The *Tonopah Draft RMP* alternatives have been developed to accommodate multiple-use management of resources in Wilderness Study Areas (WSAs). The actions proposed are those that will take place if the WSAs are released from wilderness consideration by Congress. Some of the proposed actions are compatible with the IMP, and can be implemented, while others must await final decisions from Congress.

Should Congress designate wilderness areas, the RMP will be maintained to accommodate these new designations and to modify decisions which conflict with objectives of wilderness management. The management of areas designated as wilderness will be guided by the requirements of the Wilderness Act of 1964, specific enabling legislation, and procedures of the BLM for management of wilderness areas. The management of site-specific wilderness areas will be included in future wilderness management plans. Certain actions are nondiscretionary. These include closure to motorized vehicle use (except for valid existing rights and approved nonconforming uses by permit) and withdrawal from mineral entry.

The preferred alternative was developed to select specific management actions which represent a balanced use of resources in such a way as to both protect fragile resources and meet the demands for goods and services. Input from other managers, other staff members, and the public is incorporated into the preferred alternative. In some cases, management actions contained in one of the other alternatives are selected without modification. In other cases, the alternatives are modified. Finally, for some situations, new management actions have been developed.

ALTERNATIVES CONSIDERED IN THE PLAN

The alternatives are in accordance with the discretionary limits established through applicable laws, regulations, and policies. Alternatives were developed to provide management options which address both key issues and management concerns.

ALTERNATIVE 1:

This is the No Action Alternative. Management is performed in a manner which continues the present level and systems of resource use as described in the *Tonopah MFP* and the *Esmeralda-Southern Nye RMP*. These plans contain a full array of multiple resource uses. Where resources and uses were not articulated in those plans, some of the management direction that is assumed for the No Action Alternative was derived by extrapolating from past management actions.

ALTERNATIVE 2:

This alternative provides opportunities for private economic development and economic diversity through the utilization of a wide range of resources. Lands will be made available for expansion and development, while protecting sensitive resource values.

ALTERNATIVE 3:

This alternative provides for private economic development and economic diversity which is constrained by environmental safeguards designed for the preservation and enhancement of environmental systems, and for species diversity.

ALTERNATIVE 4:

This is the preferred alternative. This alternative provides for the development of renewable and non-renewable resources, while ensuring that the preservation and enhancement of fragile and unique resources will occur.

MANAGEMENT DETERMINATIONS COMMON TO ALL ALTERNATIVES

Management determinations that are included under this heading are the same for all alternatives, including the No Action Alternative. They are discussed here separately to save duplicating them in each of the alternatives. The reader is to understand that they are a part of each alternative contained in this Draft RMP.

FISH AND WILDLIFE HABITAT

Determinations:

1. On 1,000 acres at Morey Bench, livestock grazing is excluded and will continue to be restricted to help ensure the protection of winter range for the two largest deer herds in the resource area. Use by livestock may be allowed on a non-renewable basis in a prescribed manner to achieve objectives identified in the habitat management plan (HMP) (see Map in HMP for location).

2. On 8,127 acres at Toiyabe Bench, livestock grazing is excluded and will continue to be restricted until the objectives described in the *Toiyabe Bench Deer Winter Range Management Plan* are met. Once the objectives have been met, controlled livestock grazing will be allowed in conformance with the plan to maintain acceptable habitat conditions.

3. Lockes Meadow, Blue Eagle Pond, Big Well, and Chimney Springs (a total of 2,317 acres), will continue to be excluded from livestock grazing to achieve riparian objectives, in accordance with the *Railroad Valley HMP*. Use by livestock may be allowed on a non-renewable basis, in a prescribed manner, to achieve objectives identified in the HMP.

4. The reintroduction or augmentation of bighorn sheep into potential habitat areas in the Hot Creek, Goldfield, Amargosa, Magruder/Palmetto, Monte Cristo, Montezuma, Silver Peak, Sawtooth, Bare Mountain, and Gold Mountain habitat areas will continue to be supported (see Maps 14 and 17).

5. Elk will continue to be managed in cooperation with the Nevada Department of Wildlife and the U.S. Forest Service in accordance with the *Monitor Elk Management Plan*. Elk populations will be allowed to increase until allowable use levels are reached as determined through monitoring and evaluation. If elk contribute to overuse of the vegetation, reductions will be requested through the Nevada Department of Wildlife.

LIVESTOCK GRAZING MANAGEMENT

Determinations:

1. The *Tonopah MFP* and *Tonopah Grazing EIS* along with the *Esmeralda-Southern Nye RMP/EIS* provide the guidance necessary for the livestock grazing program.

2. The initial stocking levels are shown in Appendix 6 for the *Tonopah MFP* and Appendix 7 for the *Esmeralda-Southern Nye RMP*. The initial stocking level for

each allotment was set in previous land use plans, or has been adjusted based on the evaluation of monitoring data. The future stocking level within each allotment will be adjusted as determined through the evaluation of short-term and long-term monitoring data. In allotments where monitoring data do not distinguish individual use between livestock and wild horses/burros, the initial stocking level for livestock will be based on a proportion derived from previous planning documents. Allotment boundaries are shown on Maps 20 and 21.

3. Livestock use will continue to be excluded on Morey Bench, Toiyabe Bench, Lockes Meadow, Blue Eagle Pond, Big Well, and Chimney Springs in accordance with HMP objectives. Livestock use may be allowed on a non-renewable basis and in a prescribed manner to achieve or maintain the objectives identified in the HMPs.

4. On 70,600 acres of Non-Intensive Category III desert tortoise habitat (see Map 19), and in accordance with the August 14,1991 *Biological Opinion for the Proposed Livestock Program Within Desert Tortoise Habitat in Southern Nevada*, the following terms and conditions have been placed in affected grazing leases:

   Livestock use within desert tortoise habitat may occur from March 1 through October 14; forage utilization shall not exceed 40 percent on key perennial grasses, forbs, and shrubs.

   Livestock use in desert tortoise habitat may occur from October 15 through February 28; forage utilization shall not exceed 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs.

   The key forage species within this habitat include as a minimum: Desert Needlegrass (*Stipa speciosa*), Indian Ricegrass (*Oryzopsis hymenoides*), White Burrobrush (*Hymenoclea salsola*) Winterfat (*Eurotia lanata*)

   Should utilization exceed 40 percent on key perennial grasses, forbs, and shrubs during the period of March 1 through October 14; or 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs during the period of October 15 through February 28, the lessee shall have ten (10) calendar days in which to remove all livestock from desert tortoise habitat. Utilization within each allotment shall not be averaged either among locations or over time.

   All vehicle use in desert tortoise habitat associated with the livestock grazing program shall be restricted to existing roads and trails.

   Trash and garbage associated with livestock grazing operations, i.e., branding, roundups, etc., shall be removed from each camp site or work location and disposed of off site in a designated facility. No trash or garbage shall be buried at work locations within desert tortoise habitat.

   Use of hay or grains as a feeding supplement shall be prohibited in desert tortoise habitat to avoid the introduction of non-native plant species. Mineral and salt blocks may be authorized in accordance with CFR 4130.6-2(c).

5. Unalloted lands at Columbus Salt Marsh and Emigrant Peak will remain unalloted.

6. The range improvement projects proposed in the *Tonopah MFP* and *Esmeralda-Southern Nye RMP* will be carried forward in all alternatives of this RMP/EIS, (see Appendix 5).

WILD HORSE AND BURRO MANAGEMENT

Determinations:

1. Six Herd Management Areas (HMAs) in the *Tonopah MFP* and ten HMAs in the *Esmeralda-Southern Nye RMP* are listed in Table 2-A. These HMAs are shown on Maps 22 and 23.

2. The initial herd size or appropriate management level (AML) for each HMA was defined in previous land use plans or has been adjusted based on court decision or the evaluation of monitoring data (see Table 2-A.) The future herd size or AML within each HMA will be adjusted as determined through the evaluation of short-term and long-term monitoring data. When the AML is established through monitoring and evaluation, wild horse and burro populations will not be allowed to exceed the AML. The AML will be revised only as a result of monitoring and evaluation and to achieve a thriving natural ecological balance. Once the AML has been set, a single gather plan will be prepared and implemented and will remain in effect until analysis of monitoring information indicates the need for adjustment. In HMAs where monitoring does not distinguish between wild horses/burros and livestock, the initial herd size or AML will be adjusted proportionately with the initial stocking level (active preference) for livestock. See Appendices 6 and 7 for allocations between horses/burros and initial stocking levels for livestock. Wild horse and burro populations could also be reduced as a result of emergencies (drought, fire, etc.) or conflicts with private landowners.

TABLE 2-A
INITIAL HERD SIZE OR APPROPRIATE MANAGEMENT LEVEL (AML)

Herd Management Area	Initial Herd Size[1]	Appropriate Management Levels[2]
Bullfrog	12 horses and 218 burros	
Dunlap	69 horses	
Fish Lake Valley	59 horses	
Gold Mountain	19 horses	
Goldfield	227 horses and 71 burros	
Hot Creek		41 horses
Little Fish Lake		39 horses
Montezuma	161 horses	
Palmetto	184 horses	
Paymaster/Lone Mountain	48 horses	
Reveille		145-165 horses[3]
Sand Springs		49 horses
Saulsbury	25 horses for 6 months[4]	
Silver Peak	307 horses	
Stone Cabin		364 horses
Stonewall	13 horses and 34 burros	

[1] Initial herd size is derived from previous planning documents and is the AML until modified or adjusted by monitoring and evaluation.

[2] The AML is the maximum number of wild horses and/or burros to be managed in a herd management area and has been set through monitoring and evaluation or by court order.

[3] High and low management levels as directed by 1987 Court Decision (Civil R-85-535 BRT) Fallini vs. Hodel.

[4] Wild horses drift onto public lands from the adjacent Monitor Wild Horse Territory administered by the U.S.Forest Service.

3. The Monitor HMA identified in the Tonopah MFP has been deleted. Horses censused in 1974 were mistakenly identified as wild horses. These horses were actually privately owned. Therefore, an HMA should never have been identified.

FORAGE ALLOCATION

Determinations:

1. Initial stocking levels for livestock and initial herd sizes for wild horses/burros were set in the *Tonopah MFP* and *Esmeralda-Southern Nye RMP* (see Appendices 6 and 7). Both the *Tonopah Grazing Environmental Impact Statement* and the *Esmeralda-Southern Nye RMP/EIS* analyzed an array of alternatives on forage allocation. The alternatives analyzed were: 1) a higher level of livestock use and a lower population of wild horses/burros; 2) a lower level of livestock use and a higher population of wild horses/burros; 3) continuing to manage for the then current levels of use by livestock and wild horse/burro populations; and 4) reducing both livestock use and wild horse/burro populations. As a result of the analysis of the impacts of the various alternatives on the physical, biological and socio-economic environments, determinations regarding initial stocking rates for livestock, and initial herd sizes for wild horses and burros were made. These allocations remain as valid existing management in all of the alternatives in this RMP, unless they have been modified by the monitoring, evaluation, and adjustment process.

2. Livestock and wild horse/burro use adjustments are based on short-term and long-term monitoring data. Monitoring methods are described in the 1984 *Nevada Rangeland Monitoring Handbook* and other BLM technical references.

3. Wildlife populations will be allowed to increase. If monitoring data show that wildlife are overusing the vegetative resource the Nevada Department of Wildlife will be requested to control the herd sizes at a threshold level which avoids resource damage.

4. When monitoring data indicate that additional forage is permanently available and that wildlife objectives have been met, the additional forage can be allocated to livestock and wild horses/burros. Additional forage permanently available will be allocated to livestock and wild horses/burros on a proportional basis as established by the *Tonopah MFP* or the *Esmeralda-Southern Nye RMP* (see Appendices 6 and 7). Increases in livestock grazing use will be made in accordance with 43 CFR 4110.3-1.

   (For examples of how forage allocations will be calculated see Appendix 9.)

5. When monitoring data show that grazing use is causing an unacceptable level or pattern of use, or exceeds the carrying capacity, such use will be reduced. When the offending class of animal can be determined, the numbers of animals in that class will be reduced. If monitoring data do not distinguish which is the offending animal, grazing use will be reduced on a proportional basis, or as adjusted through the monitoring, evaluation and adjustment process. The forage allocations are shown in Appendix 6 and 7. Reductions in livestock grazing use will be made in accordance with 43 CFR 4110.3-2.

CULTURAL AND PALEONTOLOGICAL RESOURCES

Cultural Resources

Determinations:

Manage for Information Potential:

Manage the Trap Springs-Gravel Bar Complex by maintaining the existing road closures until the information potential of

this complex can be recovered through a comprehensive research and data recovery program.

Manage for Conservation:

The Berlin Town Site will remain closed to fluid mineral leasing (704 acres) and the segregation under the Classification and Multiple Use Act terminated (304 acres) (see Map 34) and the area withdrawn from mineral entry.

Paleontological Resources

Determinations:

Update the Class I survey for paleontological resources in the following areas: 1) fossiliferous sedimentary rocks and Quaternary alluvium, 2) Ione Valley, 3) Tonopah Flat, and 4) Gabbs Valley.

SPECIAL AREA DESIGNATIONS

Determinations:

1. Revoke the Piñon Joshua Tree Transition Research Natural Area (RNA) designation and open the area to mineral entry. The RNA designation has been evaluated as inappropriate because no piñon trees are known to occur within the designated RNA.

   (Because all natural areas became "instant" Wilderness Study Areas (FLPMA Section 603 (a)), this decision has not been, and cannot be, implemented until a final Congressional wilderness decision is made.)

ALTERNATIVE 1 - NO ACTION ALTERNATIVE

This is the No Action Alternative. Management is performed in a manner which continues the present level and systems of resource use as described in the *Tonopah MFP* and the *Esmeralda-Southern Nye RMP*. These plans contain a full array of multiple resource uses. However, because some resources and uses were not articulated in those plans, some of the management direction that is assumed for the No Action Alternative was derived by extrapolating from past management actions.

WATERSHED

Objective:

Minimize the threat of flood and sediment damage in the resource area.

Determination:

1. Watershed values will be considered on 14 watersheds with areas having significant capability to reduce erosion before other actions from the *Tonopah MFP* are implemented. These watersheds are Wagon Johnnie, Hot Creek, Sand Springs, Stone Cabin, Morey, Ione, Monitor, Ralston, Little Railroad Valley, Reveille, San Antone, Hunts Canyon, Big Smoky, and Little Hot Creek (see Maps 3 and 4).

2. Initiate vegetation manipulation projects, in areas in which these projects will prevent and reduce erosion, by increasing vegetative cover and by reducing soil surface factor ratings.

3. Initiate vegetation manipulation programs in areas in which such programs will reduce erosion and flood

and sediment damage. Such programs should be started, if possible, in conjunction with previously recommended management improvement programs and water control projects which lie adjacent to them.

4. Initiate water control measures on 17 areas. Priority should be:

   a. Areas recommended for a combination of improved management, water control and vegetation manipulation;

   b. Areas recommended for a combination of management improvement and water control; and

   c. Areas not yet identified that seriously need water control measures.

5. Implement the following decision from the *Esmeralda-Southern Nye RMP*: Construct such small-scale water control facilities as water bars or diversion dikes to protect the Amargosa River drainage in the Oasis Valley Watershed Area.

VEGETATION

Objective:

To maintain or improve the condition of the rangeland vegetative resource.

Determination:

Provide for the physiological needs of key forage plant species. Key forage plant species are shown by allotment in Appendix 1.

VISUAL RESOURCE MANAGEMENT (VRM)

Objective:

To manage visual resources in such a way as to maintain existing scenic qualities.

Determination:

1. Manage for the following VRM class* designations as was outlined in the *Tonopah MFP:*

Class I Areas:	400 acres
Class II Areas:	686,500 acres
Class III Areas:	1,235,000 acres
Class IV Areas:	1,510,400 acres

*See Appendix 3 for a definition of Visual Resource Management Classes.

2. Maintain scenic quality of the following areas by continuing the closure to fluid mineral leasing and mineral material sales: White Rock Canyon, Black Rock Lava Flow, Easy Chair Crater, and Lunar Crater National Natural Landmark.

3. Continue the decision in the *Esmeralda-Southern Nye RMP* to maintain scenic quality along the following highways: Nevada State Route 374 (Beatty to Death Valley National Monument), Nevada State Route 276 (Scotty's Junction to Death Valley National Monument), Nevada State Route 266 (Lida Junction to California border), Nevada State Route 265 (Blair Junction to Silver Peak), and Nevada State Route 264 (U.S. Highway 6 to California border). No VRM designations were made in the *Esmeralda-Southern Nye RMP.*

WILDLIFE HABITAT

Objective:

To maintain and to improve, where necessary, the quality of wildlife habitat.

Determination:

1. In the Tonopah MFP manage range conditions in such a way as to allow existing populations of big game to increase to reasonable numbers where possible. In the *Esmeralda-Southern Nye RMP* manage current wildlife habitat initially for current wildlife numbers with a goal of achieving reasonable numbers of wildlife in both current and historical habitat.

2. Prepare Habitat Management Plans (HMP) in the following priority in the *Tonopah MFP*: Railroad Valley, Morey, Kawich, Little Fish Lake, Grant/Quinn Range, Hot Creek Range, Monitor Valley, Lower Railroad Valley-Reveille Range, Squaw Hills-Upper Pancake Range, Stone Cabin Valley, San Antone-Toiyabe-Toquima, Ione Valley-Royston Hills, Hot Creek Valley and Smoky Valley-Ralston Valley.

3. Prepare HMPs in the following priority in the *Esmeralda-Southern Nye RMP*: Silver Peak, Stonewall, Monte Cristo, Bare Mountain, Lone Mountain, Amargosa, Magruder-Palmetto, Montezuma, Goldfield Hills, Gold Mountain, Sawtooth, and White Mountains.

4. On deer winter range, 16,280 acres will continue to be closed to mineral leasing. There will continue to be a seasonal restriction on 12,640 acres between January 15 and May 1 (see Map 55).

5. In sage grouse habitats 5,600 acres will continue to be closed to mineral leasing; and there will continue to be a seasonal restriction between February 1 to May 1 on mineral leasing on 16,120 acres (see Map 55).

6. In bighorn sheep habitat, a total of 1,280 acres in lambing areas will continue to be closed to mineral leasing (see Map 55).

7. Introduce antelope into the Ione and San Antone habitat areas.

8. Animal damage control will continue to be directed at predator populations throughout the resource area.

SPECIAL STATUS SPECIES

Objective:

To prevent deterioration of the habitats of special status species.

Determination:

1. Continue protection of the Railroad Valley springfish and its critical habitat through management in accordance with the *Railroad Valley Habitat Management Plan*. There are 80 acres where fluid mineral leasing is allowed with a no surface occupancy stipulation (see Map 55).

2. Protect the habitat of the Amargosa toad and the Oasis Valley speckled dace by limiting off-highway vehicle events to existing roads, trails, and washes on 55 acres of habitat (see Map 46).

RIPARIAN HABITAT

Objective:

To maintain or improve identified riparian habitats.

Determination:

Intensively manage 13 miles of riparian habitat along 11 streams to establish and maintain woody streamside vegetation and streambank stability. If desired improvement is not achieved through management, use fencing to exclude livestock. The streams to be managed are Barker Creek, Barley Creek, Clear Creek, Corcoran Creek, Eden Creek, Jefferson Creek, Little Meadows Creek, Moores Creek, Mosquito Creek, Pine Creek, and Perry Aiken Creek (see Maps 18 and 19). These streamside riparian areas are shown on Table 3 C in Chapter 3.

FORESTRY AND VEGETATIVE PRODUCTS

Objective:

To provide vegetative products for consumptive use where such activities are compatible with other resource values.

Determination:

1. Greenwood cutting areas are established at Baxter Springs, Palmetto Wash, Silver Peak, and Palmetto. Commercial harvest is only allowed in the Palmetto Wash greenwood cutting area.

2. Deadwood harvesting is allowed on all operable woodland acreage.

3. Allow the non-commercial harvest of Joshua trees from the Magruder Mountain Harvest Area (1,823 acres). The Joshua tree area near Goldfield is closed to harvest except for salvage associated with authorized ground disturbing activities.

4. In the *Tonopah MFP*, Christmas tree cutting will be authorized area-wide, including Wilderness Study Areas released by Congress for multiple-use purposes. In the *Esmeralda-Southern Nye RMP*, Christmas tree cutting is restricted to Mohawk Mine (880 acres), and Magruder Mountain (9,600 acres). No commercial harvest of Christmas trees is authorized within the resource area.

5. Collection of common desert plants is authorized on 880 acres in the northern part of Sarcobatus Flat.

LIVESTOCK GRAZING MANAGEMENT

Objective:

To implement the recommendations of the rangeland monitoring and evaluation program to achieve management objectives.

Determination:

Manage 25 allotments as "I" (Improve) Category, three allotments as "M" (Maintain) Category, and six allotments as "C" (Custodial) Category.

WILD HORSES AND BURROS

Objective:

To manage wild horses and burros in a manner which is consistent with policy and law.

Determination:

1. Manage wild horse and burro populations in HMAs (see Maps 22 and 23) in a manner which will maintain and preserve a thriving natural ecological balance and a multiple-use relationship. Removal of excess animals will occur whenever initial herd size or AML (see Table 2 A) and the thriving natural balance are exceeded.

2. Water is made available in allotments and rested pastures for wild horses and/or burros wherever feasible.

CULTURAL RESOURCES

Objective:

To protect the cultural/paleontological values from accidental or intentional loss and provide for other land uses.

Determinations:

1. Manage for Information Potential:

   a. Tybo Charcoal Kilns (80 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyphs (10 acres), and Jumbled Rock Petroglyphs (10 acres) will remain closed to mineral leasing. No additional cultural properties will be closed to mineral leasing (see Map 55).

   b. Four acres, classified under the Small Tract Act, at the Rhyolite Bottle House will remain closed to mineral entry (see Map 35).

   c. The Tybo Charcoal Kilns will remain fenced.

2. Manage for Conservation:

   Activity plans providing for stabilization, protection, and public interpretation will be written for: Tybo Charcoal Kilns, Mountain View Arrastra, Moores Station Petroglyphs, and Jumbled Rock Petroglyphs.

LANDS AND RIGHTS-OF-WAY

Objective:

To transfer public land into private ownership to serve important public objectives.

Determination:

1. A total of 50,040 acres remain of those identified for disposal in the *Tonopah MFP* and the *Esmeralda-Southern Nye RMP*. There are an additional 9,042 acres where agricultural entry has been allowed, and which are pending disposal (see Maps 24 and 25).

2. A 160 acre parcel of private land at Pritchards Station and a 160 acre parcel of private land at Moores Station are identified for acquisition in the *Tonopah MFP*.

3. All lands within the resource area are open to consideration for rights-of-way, leases, and land use permits unless there is a conflict with other resource values that cannot be resolved.

4. A total of 12,856 acres of existing classifications and 21,139 acres of withdrawals shown in Appendix 11 and Maps 34 and 35 will be continued. Requests for withdrawal or modification/ termination of existing withdrawals will be considered on a case-by-case basis.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACECs)

Objective:

To manage sensitive resource values on a case-specific basis.

Determination:

1. The Timber Mountain Caldera National Natural Landmark designation (7,040 acres) will be retained (see Map 42).

2. The Lunar Crater National Natural Landmark designation (2,560 acres) will be retained. There are 30,080

acres closed to mineral leasing and 32,640 acres in which vehicle use is restricted to existing roads and trails (see Map 41).

RECREATION

Objective:

To provide for off-highway vehicle use by individuals and groups.

Determination:

1. Continue existing off-highway vehicle designations: 5,141,091 acres are designated as open to unrestricted use, 950,000 acres are designated as limited (restrictions include limiting to existing roads, trails, and washes), and 10 acres are designated as closed to vehicle use (see Maps 45 and 46).

2. The Gravel Bar Road and 10 acres in the Piñon Joshua Tree Transition Area RNA are closed to vehicle use.

3. Vehicle use is limited to existing roads and trails at Lunar Crater Volcanic Field (32,640 acres) and Railroad Valley Wildlife Management Area (14,710 acres).

4. Vehicle use is restricted to existing roads, trails and washes at The Sump (160 acres) and Piñon Joshua Tree Transition Area RNA (550 acres).

5. Areas closed to competitive events include the Goldfield Joshua tree area (100,000 acres), Amargosa toad and Oasis Valley speckled dace habitat (55 acres), and areas containing fragile soils (803,846 acres).

WILDERNESS

Objective:

All Wilderness Study Areas released by Congress will be returned to multiple-use.

Determination:

If and when Congress releases for multiple-use purposes, lands protected by WSA status, all land use applications will be subject to environmental review and stipulations applied on a case-by-case basis prior to authorization (see Maps 41 and 42).

UTILITY CORRIDORS

Objective:

To process each request for utility corridors on a case-specific basis.

Determination:

1. No corridors are identified in the *Tonopah MFP*. Any application for a utility transportation route will be analyzed on an individual basis to determine potential impacts to resources, alternative routes, and mitigative measures.

2. A total of 326 miles of utility corridors are identified in the *Esmeralda-Southern Nye RMP* (see Map 25). The actual right-of-way route is to be established after environmental analysis on each application has been completed.

FLUID MINERALS

Objective:

To facilitate the exploration and development of fluid minerals, and to apply appropriate environmental safeguards.

Determination:

1. There are 6,000,137 acres open to fluid mineral leasing subject to standard terms and conditions of the standard lease form. A total of 58,244 acres are closed to fluid mineral leasing. On 3,960 acres, no permit for fluid mineral leasing will allow surface occupancy. Seasonal restrictions on activities involving fluid mineral leasing are applied on 28,760 acres (see Map 55).

2. The following areas are closed to fluid mineral leasing: deer winter range (16,280 acres), sage grouse habitat (5,600 acres), bighorn sheep habitat (1,280 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (10 acres), Jumbled Rock Petroglyph (10 acres), Berlin Town Site (704 acres), Project Faultless (2,560 acres), Tybo Charcoal Kilns (80 acres), White Rock Canyon (1,600 acres), and Lunar Crater Volcanic Field (30,080 acres).

3. A no surface occupance stipulation will be applied on any permits issued in riparian areas in Railroad Valley (3,960 acres).

4. The entire resource area is open to geophysical exploration.

LOCATABLE MINERALS

Objective:

To maintain the resource area as open to mineral location unless previously withdrawn, and to prevent undue and unnecessary degradation.

Determination:

There are 6,057,106 acres open to mineral location. There are 21,139 acres withdrawn from mineral entry and 12,856 acres classified as closed to mineral entry (see Maps 34 and 35 and Appendix 11).

MINERAL MATERIALS

Objective:

To meet public demand for mineral materials on a case-specific basis and to apply appropriate environmental safeguards.

Determination:

1. There are 6,065,901 acres open to mineral material disposal under standard terms and conditions.

2. There are 25,200 acres closed to the sale of mineral materials. The following areas are closed to mineral material sales: Tonopah Gem Fields (5,760 acres), White Rock Canyon (12,000 acres), Black Rock Lava Flow (4,480 acres), Easy Chair Crater (2,560 acres), and The Crater (400 acres).

3. Continue to provide mineral materials from existing authorized sources and open new pits as necessary.

NON-ENERGY LEASABLE MINERALS

Objective:

To facilitate exploration for solid leasable minerals, and to apply appropriate environmental safeguards.

Determination:

The entire resource area is open to exploration for, or development of, non-energy leasable minerals under standard terms and conditions.

FIRE MANAGEMENT

Objective:

To protect natural resources from unacceptable damage by fire in a cost effective manner and with a high regard for private property and safety.

Determination:

1. All wildfires in intensity levels 1 through 6 will receive aggressive initial attack to contain them within 100 acres 90 percent of the time. A definition of fire intensity levels is given in the Glossary.

2. Wildfires that threaten life and property will be kept to 5 acres or less, 87 percent of the time, by utilizing the most cost effective and efficient suppression action. This will include town sites, developed mines, ranches, powerlines, and other structures and property.

3. Wildfires that threaten important resources will be kept to a minimum of 5 acres utilizing suppression actions which could suppress and/or divert the fire and be cost effective. Such important resources include riparian areas, desirable winter range, sage grouse strutting grounds, threatened and endangered plant species sites, archaeological sites, and sensitive forage plant species (bitterbrush and mountain mahogany).

ALTERNATIVE 2

This alternative provides opportunities for private economic development and economic diversity through the utilization of a wide range of resources. Lands will be made available for expansion and development, while protecting sensitive resource values.

WATERSHED

Objective:

To maintain or improve watershed conditions in the resource area.

Determination:

Watershed management concerns which were identified in the *Tonopah MFP* and the *Esmeralda-Southern Nye RMP* for watersheds having a "high potential" to reduce erosion (see Maps 3 and 4) will be addressed in activity plans (AMPs, HMPs, and HMAPS). The watersheds identified are: Oasis Valley, Wagon Johnnie, Hot Creek, Sand Springs, Stone Cabin, Morey, Ione, Monitor, Ralston, Little Railroad Valley, Reveille, San Antone, Hunts Canyon, Big Smoky, and Little Hot Creek. The activity plans developed in these watersheds will identify the site specific resource objectives, rehabilitation techniques and the designing and placement of such improvements as check dams and seedings.

VEGETATION

Objective:

To maintain or improve the condition of the vegetation resource.

Determination:

Provide for the physiological needs of key forage plant species. Key forage plant species are shown by allotment in Appendix 1.

VISUAL RESOURCE MANAGEMENT (VRM)

Objective:

Designate and manage VRM classes within a framework which provides opportunities for utilization of the resources.

Determination:

1. Manage the resource area for the following VRM classes* (see Maps 7 and 8):

Class I Areas:	0 acres
Class II Areas:	2,560 acres
Class III Areas:	133,000 acres
Class IV Areas:	5,955,541 acres

*See Appendix 3 for VRM Classes.

2. Manage the scenic quality along five highways as VRM Class III (see Map 8).

3. Manage the scenic quality of the Lunar Crater National Natural Landmark (2,560 acres) as VRM Class II. The existing mineral leasing restrictions (30,080 acres) and OHV restrictions (32,640 acres) will be reduced to 2,560 acres.

WILDLIFE HABITAT

Objective:

To manage wildlife habitat to accommodate a wide range of other uses.

Determination:

1. Manage big game habitat for good or better condition.

2. Habitat Management Plans (HMP) will be maintained, revised, or prepared for the entire resource area. Priorities are as follows:

   a. Maintain the Railroad Valley Wildlife Management Area (WMA) HMP, and Bullfrog Hills HMP (Bare Mountain, Sawtooth, and Amargosa).

   b. Revise the Silver Peak HMP.

   c. Prepare HMPs: **High Priority** - San Antone/Big Smoky Valley; Fish Lake Valley (White Mountains); Monte Cristo/Lone Mountain; **Medium Priority** - Ralston/Monitor Valleys; Stonewall/Gold Mountains; Sylvania/Palmetto/Montezuma; Railroad Valley (except for the WMA). **Low Priority** - Ione Valley/Ralston Hills; Pancake Range/Sand Springs; Hot Creek; Reveille/Kawich; Stone Cabin/Little Fish Lake Valley.

3. On 28,920 acres of mule deer winter range, restrict activities (see Standard Operating Procedures (SOPs) for environmental review and management) disturbing to mule deer between January 15 and May 1 (see Map 30).

4. On 21,720 acres of sage grouse habitat, restrict activities (see SOPs) disruptive to sage grouse between February 1 and May 1 (see Map 30).

5. On 1,280 acres of bighorn sheep lambing areas, restrict activities (see SOPs) that are incompatible with lambing between February 1 and May 15 (see Map 30).

6. Maintain antelope habitat in all areas which contain existing populations (see Map 30).

7. Animal damage control will be directed at predator populations throughout the resource area.

8. Off-site mitigation of wildlife habitat disturbance caused by locatable mineral activities (see SOPs) will be considered only after all other mitigation techniques have failed (see Appendix 4).

9. On 2,940 acres of wildlife and riparian habitat in Railroad Valley, restrict all

activities disturbing to wildlife between May 1 and August 1 (see Map 30).

SPECIAL STATUS SPECIES

Objective:

To manage for non-impairment of special status species.

Determination:

1. Manage the Railroad Valley springfish and its critical habitat by allowing mineral leasing with a no surface occupancy stipulation on 80 acres, and not authorizing any land uses on an additional 15 acres (see Map 56).

2. Manage the habitat of the Oasis Valley speckled dace and the Amargosa toad by limiting all vehicle use to existing roads and trails on 490 acres (see Map 48).

RIPARIAN HABITAT

Objective:

To apply minimum restrictions to maintain or improve identified riparian habitats to accommodate a wide range of uses.

Determination:

1. Strive to improve habitat condition trends which will eventually achieve ratings of 70 percent streambank stability and 70 percent for streambank cover on 13 miles of stream.

2. Livestock grazing will be managed through implementation of improved grazing management practices, changes in season of use, and establishment of riparian special use areas.

3. The streams to be managed are: Barker Creek, Barley Creek, Clear Creek, Corcoran Creek, Eden Creek, Jefferson Creek, Little Meadow Creek, Moores Creek, Mosquito Creek, Perry Aiken Creek, and Pine Creek.

FORESTRY AND VEGETATIVE PRODUCTS

Objective:

To provide vegetative products for consumptive use where compatible with other resource values.

Determination:

1. Authorize the harvest of woodland products in greenwood cutting areas. Limit authorization to 1,000 cords per year. If Kawich, Rawhide Mountain, and Silver Peak Wilderness Study Areas are released by Congress, establish greenwood cutting areas and authorize the harvest of an additional 500 cords per year. Greenwood cutting areas have been established at Palmetto Wash, Silver Peak, and Palmetto, and will be continued until canopy cover is reduced to approximately 10 to 20 percent. New greenwood cutting areas will be established at Bellehelen, Montezuma, Hot Creek and Squaw Wells. Expand cutting areas at Palmetto and Palmetto Wash. Commercial harvest will only be allowed in Piper Peak, Kawich, and Palmetto Wash. Close the greenwood cutting area at Baxter Springs.

2. Permit deadwood harvesting on all accessible woodland acreage.

3. Allow commercial harvest of Joshua trees from the Magruder Mountain Harvest Area and non-commercial harvest on all 231,000 acres of Joshua tree acreage, except for the Lone Mountain ACEC. Limit authorizations to 1,000 Joshua trees per year until an inventory determining the sustained

yield is completed and a new level of authorization is determined.

4. Permit the cutting of Christmas trees including Wilderness Study Areas released by Congress. Limit harvest to 1,000 trees per year. Allow both commercial and non-commercial harvest.

5. Permit the collection of common desert plants. Creosote Bush harvest will only be authorized northwest of Nevada State Route 267 in Nye County.

LIVESTOCK GRAZING MANAGEMENT

Objective:

To implement the recommendations of the rangeland monitoring and evaluation program to resolve identified resource conflicts and concerns so as to achieve management objectives.

Determination:

1. Manage 22 allotments as "I" category, three allotments as "M" category, and nine allotments as "C" category (see Appendix 8).

WILD HORSES AND BURROS

Objective:

To manage wild horses and burros consistent with policy and law to accommodate a wide range of other uses.

Determination:

1. Wild horse and burro populations will be managed to maintain and preserve a thriving natural ecological balance, and multiple-use relationship, in herd management areas (see Maps 22 and 23).

2. Remove excess animals when initial herd size or AML (see Table 2 A) and the thriving natural ecological balance is exceeded. When removals are necessary, animals will be reduced to a point which will allow five years of population increase before again reaching the initial herd size or AML.

3. The BLM will apply for appropriative water rights and/or will assert public water reserves on waters as they are identified or as they become available.

CULTURAL RESOURCES

Objective:

To manage the cultural/paleontological values to prevent accidental or intentional loss and provide for other land uses.

Determinations:

Classify and manage cultural resources for their information potential, conservation, and public values (see Appendix 13 for a complete description of these management guidelines).

1. Manage for Information Potential:

   The following resource types, and/or areas, will be managed for information potential: rockshelters and caves; historic sites lacking clear association with either established mining districts, locally important ranching operations or transportation routes; and Late Pleistocene/Western Pluvial Lakes Tradition Sites.

   Specific management determinations are as follows:

   a. Manage the Stormy-Abel Site Complex (12,320 acres) by redesigning range improvements to eliminate use in the vicinity of Storm, Coyote, and Abel springs

and by limiting vehicle use to existing roads and trails until the information potential of this complex can be recovered through a comprehensive research and data recovery program (see Map 56).

b. Manage the Trap Springs-Gravel Bar Complex (8,480 acres) by: limiting vehicles to existing roads and trails, prohibiting land disposal except for the Petro Source Refinery, prohibiting gravel sales on the gravel bar, and managing cultural resources so as to maximize data recovery and salvage maximum amounts of information while allowing for oil and gas production. The Gravel Bar Road will continue to remain closed to vehicle use (see Map 47).

2. Manage for Public Values:

The following resource types, and/or areas will be managed for public values: Rock art (petroglyphs and pictographs), charcoal kilns, historic sites associated with locally-important events or persons.

Specific management determinations are as follows:

a. Mineral leasing will be allowed with a no surface occupancy stipulation at: Jumbled Rock Petroglyphs (10 acres), Moores Station Petroglyphs (10 acres), Mountain View Arrastra (40 acres), and Tybo Charcoal Kilns (20 acres) (see Map 56).

b. Vehicles will be restricted to existing roads and trails at Tybo Charcoal Kilns (20 acres) and McIntyre Charcoal Kilns (60 acres) (see Map 47).

c. Cane Man Hill (680 acres) will be closed to the sale of common variety minerals.

d. The historic townsite of Rhyolite will have no special designation. The area will be withdrawn from mineral entry. Lands in the townsite will be disposed of only under the Recreation and Public Purposes Act. The Small Tract Act Classification (four acres) at the Rhyolite Bottle House will be terminated. Provide for signing and barricades to exclude people from unsafe structures. Develop visitor use facilities.

e. Fence McIntyre Charcoal Kilns and develop visitor use facilities. The Tybo Charcoal Kilns will remain fenced.

LANDS AND RIGHTS-OF-WAY

Objective:

To make lands available for community expansion and for private economic development to increase the potential for economic diversity.

Determination:

1. Make a total of 363,000 acres of public lands available for potential disposal (see Maps 26 and 27). This total consists of 50,040 acres identified for disposal in the No Action Alternative and 32,154 acres of allowed and proposed agricultural entry, and 280,806 additional acres.

2. If the original entrant or the entrant's assignee fails to "prove up" under the agricultural land laws, lands classified for agricultural entry will be disposed of only under the sale and exchange authorities.

3. In right-of-way avoidance areas, rights-of-way and other discretionary lands actions will be granted if no feasible alternative route is available. Any such grants, leases, or permits will include appropriate stipulations to protect the areas special values.

   Seasonal Restrictions - deer winter range, January 15-May 1 (28,920 acres); sage grouse habitat, February 1-May 1 (21,720 acres); bighorn sheep habitat, February 1-May 15 (1,280 acres); and Railroad Valley riparian areas, May 1-August 30 (2,940 acres); for a total of 54,860 acres (see Map 56).

   Rights-of-way in the following areas will have to be compatible with the areas special values. The Lone Mountain ACEC (14,400 acres) (see Map 42) and Lunar Crater ACEC (2,560 acres) (see Map 41).

4. A right-of-way exclusion area (15 acres) will be established in Railroad Valley springfish habitat (see Map 56).

5. A total of 11,993 acres will be withdrawn. The withdrawal for the Railroad Valley Wildlife Management Area will be reduced from 14,710 acres to 2,940 acres. A total of 60 acres of new withdrawal from mineral entry will be requested for Gold Point. The classifications at Rhyolite (4 acres) and Lunar Crater (2,560 acres) will be terminated and the areas withdrawn from mineral entry (see Appendix 11 and Maps 35 and 36).

6. A total of 33,974 acres will be classified as suitable for disposal or lease under appropriate authority. There will be 32,154 acres classified for allowed and proposed agricultural entries. Terminate the classifications under the Small Tract Act and the segregations under Classification and Multiple Use Act.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACECs)

Objective:

To manage sensitive resource values on a case-specific basis. Use formal designations only when sensitive resource values outweigh other resource potentials.

Determination:

1. Designate the Lunar Crater National Natural Landmark (2,560 acres) as an ACEC to protect geologic features (see Map 41). Terminate the Classification and Multiple Use (C&MU) Act classification and withdraw the area from mineral entry. No land uses (see SOPs) will be authorized which are incompatible with the area's special values. Limit vehicle use to existing roads and trails. Establish a Special Recreation Management Area (SRMA) in the ACEC. Allow mineral leasing with a no surface occupancy stipulation.

2. Designate 14,400 acres as the Lone Mountain ACEC to protect habitat representative of the diversity of species in Nevada. Close to sales all vegetative products. No land uses (see SOPs) which are incompatible with the values will be authorized. Limit vehicle use to existing roads and trails (see Map 42).

RECREATION

Objective:

To apply the minimum constraints necessary to protect important resource values and to allow for off-highway vehicle use.

Determination:

1. Designate 5,984,621 acres as open to unrestricted vehicle use, and limited on 106,480 acres (restrictions include limiting use to existing roads, trails, and washes, seasonal restriction; or restrictions by type of user) (see Maps 47 and 48).

2. The Gravel Bar Road will remain closed to vehicle use.

3. In the following areas, vehicles will be limited to existing roads and trails: Lunar Crater ACEC (2,560 acres), Amargosa toad and Oasis Valley speckled dace habitat (490 acres), Lone Mountain ACEC (14,400 acres), the Sump (160 acres), Railroad Valley WMA (14,710 acres), Stormy-Abel Prehistoric District (12,320 acres), Trap Springs-Gravel Bar Prehistoric District (8,840 acres); Tybo-McIntyre Charcoal Kilns (80 acres). Some of these areas overlap each other.

4. The Sump (160 acres) will be closed to competitive events.

5. Competitive events will be restricted by placing seasonal restrictions on 52,920 acres of wildlife habitat (see wildlife determinations).

Objective:

To manage as Special Recreation Management Areas (SRMA) lands on which demands by current or potential recreation users warrant intensive use practices.

Determination:

Designate as SRMAs: Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), Lunar Crater Volcanic Field (2,560 acres), and the Railroad Valley Wildlife Management Area (14,710 acres). Limit off-highway vehicle use in the Lunar Crater and Railroad Valley SRMAs to existing roads and trails.

Objective:

To manage as an Extensive Recreation Management Area (ERMA), emphasizing dispersed recreation use, all lands not requiring intensive management of recreational uses.

Determination:

Designate the Tonopah ERMA which includes the 6,064,591 acres not within a SRMA. Develop minimal facilities necessary to meet the needs of dispersed recreational uses and to protect the environment.

Objective:

To establish Back-Country Byways to facilitate visitation to less-frequented public lands and to showcase areas of scenic, wildlife, natural, cultural, and/or recreational interest.

Determination:

Designate the Emigrant Pass and Lunar Crater Volcanic Field as Back-Country Byways.

WILDERNESS

Objective:

To return all Wilderness Study Areas released by Congress to multiple-use.

Determination:

Wilderness Study Areas released by Congress for multiple-use purposes will be managed as proposed in other programs (see Maps 41 and 42). All applications will be subject to environmental review and stipulations applied on an individual basis prior to authorization. Greenwood cutting

areas will be established in Kawich, Rawhide and Silver Peak.

UTILITY CORRIDORS

Objective:

To locate utility corridors to facilitate the placement of major utility systems through the resource area.

Determination:

A total of 668 miles, as shown on Maps 26 and 27, will be designated as transportation and utility corridors.

FLUID MINERALS

Objective:

To provide maximum opportunity for fluid mineral exploration and development using standard terms and conditions.

Determination:

1. A total of 6,029,557 acres will be open to fluid mineral leasing, subject to the terms and conditions of the standard lease form.

2. Close 3,264 acres to mineral leasing. Allow mineral leasing with a no surface occupancy stipulation on 2,720 acres. Apply seasonal restrictions on fluid mineral leasing activities on 55,560 acres (see Map 56).

3. Close Berlin Town Site (704 acres) and Project Faultless (2,560 acres) to mineral leasing.

4. Allow mineral leasing with a no surface occupancy stipulation on: Railroad Valley springfish habitat (80 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (10 acres), Jumbled Rock Petroglyph (10 acres), Tybo-Charcoal Kilns (20 acres) and Lunar Crater ACEC (2,560 acres).

5. Seasonal restrictions will apply on: deer winter range (28,920 acres), sage grouse habitat (21,720 acres), bighorn sheep habitat (1,280 acres) and Railroad Valley riparian habitat (3,640 acres) (see wildlife determinations).

6. The determinations made for mineral leasing will also apply to geophysical exploration.

LOCATABLE MINERALS

Objective:

To provide maximum opportunity for the exploration for, and the location of, locatable minerals and to prevent unnecessary and undue degradation.

Determination:

1. A total of 6,045,134 acres will be open to operation under the mining laws.

2. A total of 11,993 acres will be withdrawn from mineral entry. The withdrawal for the Railroad Valley Wildlife Management Area will be reduced from 14,710 acres to 2,940 acres. A total of 60 acres of new withdrawal from mineral entry will be requested for Gold Point. The classifications at Rhyolite (4 acres) and Lunar Crater (2,560 acres) will be terminated and the areas withdrawn from mineral entry (see Appendix 11 and Maps 35 and 36).

3. A total of 33,974 acres will be classified and closed to mineral entry.

MINERAL MATERIALS

Objective:

To meet public demand for mineral materials on a case-specific basis, and to apply appropriate environmental safeguards.

Determination:

1. A total of 6,026,317 acres will be open to the disposal of mineral materials under standard terms and conditions.

2. Close 9,224 acres to the disposal of mineral materials. Apply seasonal restrictions on the disposal of mineral materials on 55,560 acres (see Map 56) (see wildlife determinations).

3. Close the following areas to mineral material sales: Berlin Town Site (704 acres), Project Faultless (2,560 acres), Railroad Valley springfish habitat (80 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (10 acres), Jumbled Rock Petroglyph (10 acres), Tybo Charcoal Kilns (20 acres), Lunar Crater ACEC (2,560 acres), Cane Man Hill (680 acres), and the Gravel Bar Complex (2,560 acres).

4. Continue to provide mineral materials from the existing authorized sources, and open new pits as necessary, unless such actions conflict with the above restrictions.

NON-ENERGY LEASABLE MINERALS

Objective:

To provide the maximum opportunity for the leasing and development of solid leasable minerals, while applying appropriate environmental safeguards.

Determination:

1. A total of 6,029,557 acres will be open to non-energy mineral activities under standard terms and conditions.

2. Close 5,984 acres to the leasing of lands for exploration or development of non-energy minerals. Apply seasonal restrictions on non-energy mineral leasing on 55,560 acres of seasonal wildlife habitat (see Map 56) (see wildlife determinations).

3. Close to mineral leasing: Berlin Town Site (704 acres), Project Faultless (2,560 acres), Railroad Valley springfish habitat (80 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (10 acres), Jumbled Rock Petroglyph (10 acres), Tybo Charcoal Kilns (20 acres), and Lunar Crater ACEC (2,560 acres).

FIRE MANAGEMENT

Objective:

To protect natural resources from unacceptable damage by fire in a cost effective manner while maintaining a high regard for private property and safety.

Determination:

1. All wildfires in intensity levels 1 through 6 will receive aggressive initial attack to contain them within 100 acres 90 percent of the time. A definition of fire intensity levels is given in the Glossary.

2. Wildfires that threaten life and property will be kept to 1 acre or less, 100 percent of the time utilizing the most cost effective and efficient suppression action. This will include town sites, developed mines, ranches, powerlines, and other structures and property.

3. Wildfires that threaten important resources will be kept to a minimum of 5 acres utilizing suppression actions

3. Wildfires that threaten important resources will be kept to a minimum of 5 acres utilizing suppression actions which could suppress and/or divert the fire and be cost effective. Such important resources include riparian areas, desirable winter range, sage grouse strutting grounds, threatened and endangered plant species sites, archaeological sites, and sensitive forage plant species (bitterbrush and mountain mahogany).

ALTERNATIVE 3

This alternative provides for private economic development and economic diversity which is constrained by environmental safeguards designed for the preservation and enhancement of environmental systems, and for species diversity.

WATERSHED

Objective:

To maintain or improve watershed conditions in the resource area.

Determination:

Prepare activity plans (AMPs, HMPs, and HMAPs) in watersheds where there is a high potential to reduce erosion, and identify the site specific resource objectives, rehabilitation techniques and the designing and placement of such improvements as check dams and seedings. The watersheds are: Oasis Valley, Wagon Johnnie, Hot Creek, Sand Springs, Stone Cabin, Morey, Ione, Monitor, Ralston, Little Railroad Valley, Reveille, San Antone, Hunts Canyon, Big Smoky, and Little Hot Creek (see Maps 3 and 4).

VEGETATION

Objective:

To provide for vegetative and ecological diversity.

Determination:

1. Manage the vegetation resource for desired plant communities. General descriptions of desired plant communities are described by ecological site in Appendix 2. Descriptions of specific desired plant communities will be developed at each key area based on information gathered at the site and the ecological site potential.

2. Manage the Blue Eagle bristlecone pine stand with the following constraints: mineral leasing will be allowed with a no surface occupancy stipulation on 3,600 acres and no land uses will be authorized that are incompatible with the areas values.

VISUAL RESOURCE MANAGEMENT

Objective:

To designate VRM Classes and manage for species diversity and the continuation of natural systems.

Determination:

1. Manage for the following VRM class* designations (see Maps 9 and 10):

Class I Areas:	0 acres
Class II Areas:	597,000 acres
Class III Areas:	90,000 acres
Class IV Areas:	5,404,101 acres

*See Appendix 3 for a definition of Visual Resource Management Classes.

2. Manage scenic quality along five identified highways as VRM Class II areas (SR 374 between Beatty and Death Valley National Monument, SR 276 Between Scotty's Junction and Death Valley National Monument, SR 266 between Lida Junction and the California border, SR 265 between Blair Junction and Silver Peak, and SR 264 between U.S. 6 and the California border.

3. Manage the Lunar Crater ACEC (39,680 acres) and the primitive and semi-primitive non-motorized areas (429,490 acres) as VRM Class II areas (see appendix 12 for definition).

4. No utility corridor designations or woodland product sales will be allowed in VRM Class II areas.

WILDLIFE HABITAT

Objective:

To maintain and enhance wildlife habitat and to provide for species diversity.

Determination:

1. Manage mule deer, antelope, and bighorn sheep habitat in good or better condition.

2. Prepare or revise Habitat Management Plans (HMP) for the entire resource area. Priorities are as follows:

   a. Maintain the Railroad Valley Wildlife Management Area (WMA) HMP and Bullfrog Hills HMP (Bare Mountain, Sawtooth, and Amargosa).

   b. Revise the Silver Peak HMP.

   c. Prepare HMPs; **High Priority**: San Antone/Big Smoky Valley - Fish Lake Valley (White Mountains), Monte Cristo/Lone Mountain, **Medium Priority**: Ralston/Monitor Valleys, Stonewall/Gold Mountain, Sylvania/Palmetto/Montezuma, Railroad Valley (except for the WMA). **Low Priority**: Ione Valley/Ralston Hills, Pancake Range/Sand Springs, Hot Creek, Reveille/Kawich, Stone Cabin/Little Fish Lake Valleys.

3. Close 16,280 acres of mule deer winter range to mineral leasing and do not authorize any land uses (see Standard Operating Procedures (SOPs) for Environmental Reviews and Management) which are incompatible with the area's values. Restrict all activities which might be disturbing to mule deer activity on 12,640 acres of mule deer winter range between January 15 and May 1 (see Maps 30 and 31).

4. Close 5,600 acres of sage grouse habitat to mineral leasing and do not authorize any land uses (see SOPs) which are incompatible with sage grouse management. Restrict all activities which might be disruptive to sage grouse on 20,280 acres of sage grouse habitat between February 1 and May 1 (see Maps 30 and 31).

5. Manage bighorn sheep habitat (324,000 acres) by: prohibiting new sites for communication facilities and

limiting vehicle use to existing roads and trails; prohibiting off-highway vehicle events within one-quarter mile of Specie Spring; restricting all activities between Feb. 1 and May 15 in lambing areas (17,480 acres); withdrawing from mineral entry and prohibit any land uses (see SOPs) that are incompatible with bighorn sheep lambing on 1,440 acres.

6. Improve antelope habitat in all areas which now contain existing populations, provide for augmentation of antelope numbers and develop water sources (see Map 13).

7. Animal damage control will be targeted at the individual offending animal only. There will be no preventative control unless authorized by the BLM authorized officer.

8. Appropriate off-site mitigation will be required when locatable mineral actions cause a loss of habitat exceeding thresholds identified in Appendix 4.

SPECIAL STATUS SPECIES

Objective:

To restore, enhance, and expand habitat of special status species.

Determination:

1. Manage Non-Intensive Category III desert tortoise habitat on 70,600 acres (see Map 19) by limiting vehicle use to existing roads and trails. In cases in which new road construction is discretionary, no new roads will be constructed in washes.

2. Manage Railroad Valley springfish and its critical habitat (80 acres) by allowing mineral leasing with a no surface occupancy stipulation, and by not authorizing any land uses (see SOPs) at North Spring and Reynolds Spring (see Map 58).

3. Designate the existing Railroad Valley Wildlife Habitat Management Area and adjacent Railroad Valley springfish habitat as an ACEC (see Map 41).

4. Designate the Amargosa-Oasis riparian area, including habitat for the Oasis Valley speckled dace and the Amargosa toad as an ACEC (490 acres) (see Map 42). Management of this area includes: exclusion of livestock and wild burros, no authorization of any land uses (see SOPs) which are incompatible with the area's values, limitation of vehicle use to existing roads and trails, acquisition of non-consumptive appropriative water rights as they are available, allowing mineral leasing with a no surface occupancy stipulation and withdrawal of area from mineral entry. Acquire adjacent private lands containing desirable riparian values.

RIPARIAN HABITATS

Objective:

To manage riparian habitats for proper functioning condition.

Determination:

1. Manage riparian habitat for 70 percent streambank stability ratings and 70 percent streambank cover ratings on all 32.8 miles of streamside riparian areas listed on Table 3 C in Chapter 3 (see Maps 18 and 19).

2. Manage for prevention of riparian habitat deterioration on streams with 70 percent streambank stability and 70 percent streambank cover ratings and on streams with improving trend.

3. Where streams have better than 50 percent streambank stability ratings and 50 percent streambank cover ratings, design and implement management practices to establish 70 percent streambank stability rating and 70 percent streambank cover rating in five years. If desired improvement does not occur, and livestock and/or wild horses/burros are the cause, exclude the offending animals.

4. Where streambank cover and streambank stability ratings are less than 50 percent, and livestock and wild horses/burros are the cause, exclude livestock and wild horses/burros.

5. Manage for trout habitat on Barley Creek, Barker Creek, Clear Creek, Corcoran Creek, Jefferson Creek, Moores Creek, Mosquito Creek, Perry Aiken Creek, Pine Creek, Silver Peak Pond Creek, and Troy Creek, a total of 800 acres. Acquire minimum water flows in accordance with State water law to support trout. Close to vehicle use a 300-foot area each side of the above streams. Vehicle use will be allowed on existing roads and trails.

6. Acquire 160 acres which includes trout habitat at Moores Station.

FORESTRY AND VEGETATIVE PRODUCTS

Objective:

To provide vegetative products for consumptive use while providing for enhancement of natural systems, and species diversity.

Determination:

1. Authorize the harvest of woodland products on greenwood cutting areas. Limit authorization to 1,000 cords per year. Greenwood cutting areas at Palmetto Wash, Silver Peak, and Palmetto will continue to be used until approximately 10 to 20 percent of the canopy cover remains. Establish new greenwood cutting areas at Squaw Wells, Hot Creek and Montezuma. Do not allow commercial cutting of firewood. Greenwood cutting areas will not be established in areas closed to OHV use or where OHV use is restricted to existing roads and trails. Close the greenwood cutting area at Baxter Springs.

2. Do not allow the harvest of Joshua trees in the area that can be seen from Highway 95 near Goldfield. Do not allow commercial harvest of Joshua trees except for salvage operation incidental to surface disturbance. Limit authorizations to 600 trees per year until an inventory determining the sustained yield is completed and a new level of authorization is determined.

3. Permit the cutting of Christmas trees throughout the resource area, including Wilderness Study Areas released by Congress, unless otherwise restricted. Limit harvest to 1,000 trees per year. Allow only non-commercial harvest.

4. Permit the collection of common desert plants and seeds unless otherwise restricted. Creosote Bush harvest will only be authorized northwest of Nevada State Route 267 in Nye County. No sales of live desert plants will be permitted to remove more than 10 percent of the existing canopy cover.

LIVESTOCK GRAZING MANAGEMENT

Objective:

To implement the findings of the rangeland monitoring and evaluation program to achieve resource objectives and to enhance natural systems.

Determination:

1. Manage 22 allotments as "I" category, three allotments as "M" category, and nine allotments as "C" category (see Appendix 8).

2. Livestock will be excluded from 23,538 acres. In addition to areas presently excluded (11,444 acres), exclude the following areas: Railroad Valley ACEC (13,130 acres of which 2,235 acres are already excluded); Stormy-Abel ACEC (480 acres); Amargosa-Oasis ACEC (490 acres); Barley Creek (32 acres); Clear Creek (16 acres); Corcoran Creek (32 acres); Hunts Canyon Creek (32 acres); Little Meadows Creek (85 acres); and Ox Springs Wash (32 acres).

WILD HORSES AND BURROS

Objective:

To manage wild horses and burros consistent with policy and law to emphasize enhancement of habitat and natural systems.

Determination:

1. Wild horse and burro populations will be managed so as to maintain and preserve a natural thriving ecological balance and multiple-use relationship in herd management areas (see Maps 22 and 23).

2. Remove excess animals when initial herd size or AML (see Table 2 A) and the thriving natural ecological balance is exceeded. When removals are necessary, animals will be reduced to a point which will allow three years of population increase before again reaching the initial herd size or AML.

3. Vehicle use will be limited to existing roads and trails in herd management areas. Locatable mineral traffic will be encouraged to use these roads and trails.

4. The BLM will apply for appropriative water rights and/or assert public water reserves on water sources as they are identified or become available. Fluid mineral leasing will be allowed with a no surface occupancy stipulation and no land uses will be authorized within one-half mile of wild horse/burro water sources (55,680 acres). A radius of 1½ miles around Specie Spring and 1 mile around Mud Spring (8,320 acres), which are within the Bullfrog Herd Management Area, will be closed to mineral leasing, and withdrawn from mineral entry. No land uses will be authorized. The area will also be closed to off-highway vehicle events.

5. No lands will be disposed of in Herd Management Areas.

CULTURAL RESOURCES

Objective:

Protect and preserve in place representative examples of the full array of cultural resources on public lands for the benefit of scientific and public use by current and future generations.

Determinations:

Classify and manage cultural resources for their information potential, conservation, and public values (see Appendix 13 for a complete description of these guidelines).

1. Manage for Information Potential:

   Sites on valley bottoms lacking Pleistocene lake features; historic sites lacking clear association with either established mining districts, locally important ranching operations or major transportation routes; and sites on upper and lower bajada slopes will be managed for information potential.

2. Manage for Public Values:

   The following resource types, and/or areas will be managed for public values: rock art (petroglyphs and pictographs), charcoal kilns, historic sites associated with locally important events or persons.

   Specific management determinations are as follows:

   a. The following areas will be closed to mineral leasing: Mountain View Arrastra (40 acres), Jumbled Rock Petroglyphs (10 acres) and Moores Station Petroglyphs (40 acres) (see Map 57).

   b. Withdraw from mineral entry and limit vehicle use to existing roads and trails at Moores Station Petroglyph (40 acres), The Cistern (20 acres) and Mountain View Arrastra (20 acres) (see Maps 37 and 38).

3. Manage for Conservation:

   Rockshelters; caves; historic sites with established mining districts, locally important ranching operations or major transportation routes; and Late Pleistocene/Western Pluvial Lakes Tradition sites will be managed for conservation.

   Specific management determinations are as follows:

   a. Designate 680 acres as the Cane Man Hill ACEC to protect prehistoric values (see Map 42). No land uses (see SOPs) will be authorized that are incompatible with the areas values. Limit vehicle use to designated roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw from mineral entry. Manage cultural resources for conservation.

   b. Designate 460 acres as the Rhyolite ACEC to protect historic and prehistoric values. Manage prehistoric and historic values for information and preservation (see Map 42). Land disposal will not be allowed. No land uses (see SOPs) will be authorized which are incompatible with the areas values. Acquire adjacent private lands in the SE 1/4 Sec. 9. Limit vehicle use to existing roads and trails. Establish a Special Recreation Management Area. Provide for signing and barricades to exclude people from unsafe structures. Provide for law enforcement and a caretaker. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

   c. Designate 12,320 acres as the Stormy-Abel ACEC to protect prehistoric values (see Map 41). Manage cultural resources for conservation and information. Eliminate grazing within one-quarter mile of Storm, Coyote, and Abel Springs. No land uses (see SOPs) will be authorized which are incompatible with the values being protected. Limit vehicle use to existing roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

d. Designate 8,480 acres as the Trap Springs-Gravel Bar ACEC to protect prehistoric values (see Map 41). Manage cultural resources for conservation and protection. Do not allow any land disposal. No land uses (see SOPs) will be authorized which are incompatible with the areas values. Maintain the closure of the Gravel Bar Road. Limit vehicle use to existing roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

e. Designate 80 acres (20 acres around each set of kilns) as the Tybo-McIntyre Charcoal Kilns ACEC to protect historic structures (see Map 41). Manage historical values for conservation and information. No land uses (see SOPs) will be authorized which are incompatible with the areas values. Improve access roads and limit vehicle use to existing roads and trails. Develop visitor use facilities and establish a SRMA. Maintain the restriction for no surface occupancy for fluid mineral leasing on 20 acres at Tybo-Charcoal Kilns and allow mineral leasing with a no surface occupancy stipulation on 60 acres at McIntyre Charcoal Kilns. Withdraw the ACEC from mineral entry.

LANDS AND RIGHTS-OF-WAY

Objective:

To identify the minimum amount of land necessary to support important public purposes. Retain lands with high resource values.

Determination:

1. Make available a total of 40,662 acres of public land for disposal. The lands identified for disposal in the No Action Alternative (see Maps 24 and 25) will be reduced by 18,420 acres. The following parcels previously identified for disposal will be retained in Federal ownership: Amargosa-Oasis ACEC (490 acres), Rhyolite ACEC (460 acres); riparian lands along Perry Aiken and Jefferson Creeks (30 acres), deer winter range along Chiatovich Creek (5,760 acres); lands within the following wild horse and burro HMAs; Goldfield HMA (1,920 acres), Palmetto HMA (320 acres), Bullfrog HMA (7,200 acres), and Stone Cabin HMA (2,240 acres) for a total of 18,420 acres. Agricultural entry will allowed on 9,042 acres.

2. If the original entrant or the entrant's assignee fails to "prove up" under the agricultural land laws, lands classified for agricultural entry will be disposed of only under the sale and exchange authorities.

3. Acquire private lands if economically prudent and if the owner is agreeable through exchange or purchase at Moores Station (160 acres), Prichards Station (160 acres), Lockes Ranch (480 acres), Fish Lake (600 acres), Rhyolite ACEC (645 acres), and the Amargosa-Oasis ACEC (490 acres). These lands are shown on Maps 28 and 29. All acquired lands will be managed in accordance with the RMP and activity plans.

4. In right-of-way avoidance areas, rights-of-way and other discretionary lands actions will be granted in these areas only if no feasible alternative route is available. Any such grants, leases, or permits will include appropriate

stipulations to protect the areas special values.

The following right-of-way avoidance areas will be established (see Maps 30 and 31):

a. Seasonal restrictions: on deer winter range between January 15 and May 1 (12,640 acres), sage grouse habitat between February 1 and May 1 (20,280 acres), bighorn sheep habitat between February 1 and May 15 (17,480 acres) for a total of 50,400 acres.

b. Rights-of-way allowed within the following areas will have to be compatible with the areas' special values: Blue Eagle bristlecone forest (3,600 acres), deer winter range (16,280 acres), sage grouse habitat (5,600 acres), bighorn sheep lambing grounds (1,440 acres), desert tortoise habitat (70,600 acres), wild horse/burro waters (55,680 acres), Moores Station Petroglyphs (40 acres), the Cistern (20 acres), Mountain View Arrastra (20 acres), Amargosa-Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,390 acres), Rhyolite ACEC (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Spring-Gravel Bar ACEC (8,480 acres), Tybo-McIntyre Charcoal Kilns ACEC (80 acres), Clayton Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), facilities in the ERMA (60 acres), primitive areas (90,370 acres), and semi-primitive non-motorized areas (339,120 acres) for a total of 660,870 acres (Some of the above acreages overlap, affecting total).

5. The following right-of-way exclusion areas will be established: Lunar Crater Volcanic Field ACEC (39,680 acres), Railroad Valley springfish habitat (80 acres), and important wild horse/burro waters (8,320 acres) for a total of 48,080 acres (see Maps 30 and 31).

6. No new communication sites will be authorized. Existing communication sites will be expanded to accommodate future demand.

7. All other lands within the resource area will be open to consideration for rights-of-way, leases, and land use permits unless there is a conflict with other resource values that cannot be resolved.

8. A total of 547,139 acres will be withdrawn from mineral entry (see Maps 36 and 37).

9. Continue the withdrawal of 21,139 acres. Withdraw an additional 526,000 acres from mineral entry as follows: bighorn sheep lambing grounds (1,440 acres), important wild horse/burro water sources (8,320 acres), Lunar Crater ACEC (39,680 acres), Amargosa Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,470 acres), Rhyolite ACEC (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Springs-Gravel Bar ACEC (8,480 acres), Tybo-McIntyre ACEC (80 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), facilities in the ERMA (70 acres), primitive areas (90,370 acres), semi-primitive non-motorized areas (339,120 acres), Mountain View Arrastra (20 acres), the Cistern (20 acres), and Moores Station Petroglyph (40 acres).

10. A total of 10,863 acres will be classified as suitable for disposal or lease under appropriate authority. Terminate all classifications under the Small Tract Act and segregations under the Classification and Multiple Use Act.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACECs)

Objective:

To protect sensitive resource values through formal designation and recognition in combination with other resource values.

Determination:

1. Designate 7,040 acres as the Timber Mountain Caldera National Natural Landmark ACEC to protect geologic features (see Map 42).

2. Designate 39,680 acres as the Lunar Crater Volcanic Field ACEC to protect important geologic features (see Map 41). No land uses (see SOPs) will be authorized. Limit vehicle use to existing roads and trails. Establish a Special Recreation Management Area in the ACEC. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

3. Designate 490 acres as the Amargosa-Oasis ACEC to protect riparian areas and special status species habitat (see Map 42). Acquire non-consumptive appropriative water rights. Exclude livestock and wild burros from riparian vegetation. No land disposal will be allowed. Acquire adjacent private lands. No land uses (see SOPs) will be authorized that are incompatible with the area's values. Limit vehicle use to existing roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

4. Designate 680 acres as the Cane Man Hill ACEC to protect prehistoric values (see Map 42). No land uses (see SOPs) will be authorized that are incompatible with the area's values. Limit vehicle use to designated roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry. Manage cultural resources for conservation and information.

5. Designate 14,400 acres as the Lone Mountain ACEC to protect habitat representative of Nevada's species diversity (see Map 42). No land uses (see SOPs) will be authorized which are incompatible with the area's values. No communication sites will be authorized. Limit vehicle use to existing roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry. Conduct validity examinations on all Plans of Operations.

6. Designate 15,470 acres as the Railroad Valley ACEC to protect riparian areas, wildlife and special status species habitats (see Map 41). Acquire non-consumptive appropriative water rights. Exclude livestock from 13,130 acres. No land uses (see SOPs) will be authorized on 80 acres to protect Railroad Valley springfish habitat. No land uses (see SOPs) will be authorized which are incompatible with the area's values in the balance of the ACEC. Acquire 480 acres at Lockes Ranch through exchange or purchase. Limit vehicle use to existing roads and trails in the ACEC. Establish a Special Recreation Management Area. Allow mineral leasing with a no surface occupancy stipulation on 3,720 acres (this includes 80 acres of Railroad Valley springfish habitat). Withdraw 15,470 acres from mineral entry. Request relinquishment of the NDOT

mineral materials site. New roads constructed for Oil and Gas exploration and not needed for production will be reclaimed in such a way as to resemble natural conditions.

7. Designate 460 acres as the Rhyolite ACEC to protect historic and prehistoric values. Manage prehistoric and historic values for information and preservation (see Map 42). Land disposal will not be allowed. No land uses (see SOPs) will be authorized which are incompatible with the area's values. Acquire adjacent private lands in the T. 12 S., R. 46 E., Sec. 9, SE 1/4. Limit vehicle use to existing roads and trails. Establish a Special Recreation Management Area. Provide for signing and barricades to exclude people from unsafe structures. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

8. Designate 12,320 acres as the Stormy-Abel ACEC to protect prehistoric values (see Map 41). Manage cultural resources for conservation and information. Eliminate grazing within one-quarter mile of Storm, Coyote, and Abel Springs. No land uses (see SOPs) will be authorized which are incompatible with the values being protected. Limit vehicle use to existing roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

9. Designate 8,480 acres as the Trap Springs-Gravel Bar ACEC to protect prehistoric values (see Map 41). Manage cultural resources for conservation and protection. Do not allow any land disposal. No land uses (see SOPs) will be authorized which are incompatible with the area's values. Maintain the closure of the Gravel Bar Road. Limit vehicle use to existing roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

10. Designate 80 acres (20 acres around each set of four kilns) as the Tybo-McIntyre Charcoal Kilns ACEC to protect historic structures (see Map 41). Manage historical values for conservation and information. No land uses (see SOPs) will be authorized which are incompatible with the area's values. Improve access roads and limit vehicle use to existing roads and trails. Develop visitor use facilities and establish a SRMA. Maintain the restriction for no surface occupancy for fluid mineral leasing on 20 acres at Tybo Charcoal Kilns, and allow mineral leasing with a no surface occupancy stipulation on 60 acres at McIntyre Charcoal Kilns. Withdraw the ACEC from mineral entry.

RECREATION

Objective:

To protect natural systems through constraints on off-highway vehicle use,

Determination:

1. Designate 2,175,755 acres as open to unrestricted vehicle use, 3,485,056 acres as limited (restrictions include limiting use to existing roads, trails, and washes, seasonally or by type of user), and 430,290 acres as closed to all vehicle uses (see Maps 49 and 50).

2. Areas closed to vehicle use include: Gravel Bar Road, streamside riparian areas (800 acres), primitive areas (90,370 acres), and semi-primitive non-motorized areas (339,120 acres).

3. In the following areas vehicles will be limited to existing roads and trails:

bighorn sheep habitat (324,000 acres), desert tortoise habitat (70,600 acres), herd management areas (2,088,000 acres), Lunar Crater ACEC (39,680 acres), Amargosa Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,470 acres), Rhyolite ACEC (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Springs-Gravel Bar ACEC (8,840 acres), Tybo-McIntyre ACEC (80 acres), the Sump (1,600 acres), facilities in the ERMA (60 acres), Moores Station Petroglyph (40 acres), the Cistern (20 acres), Mountain View Arrastra (20 acres), Joshua tree forest near Goldfield (100,000 acres), and semi-primitive motorized areas (465,725 acres).

4. The following areas will be closed to competitive events: bristlecone pine stand (3,600 acres), deer winter range (16,280 acres), sage grouse habitat (5,600 acres), bighorn sheep lambing grounds (1,440 acres), waters in wild horse/burro HMAs (64,000 acres), Lunar Crater ACEC (39,680 acres), Amargosa-Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,470 acres), Rhyolite ACEC (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Springs-Gravel Bar ACEC (8,840 acres), Tybo-McIntyre ACEC (80 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), facilities in the ERMA (60 acres) and the Sump (1,600 acres).

5. Competitive events are limited by seasonal restrictions on 50,400 acres of wildlife habitat (see wildlife determinations).

6. Competitive events are restricted to existing roads and trails on fragile soils (803,846 acres), and within a half mile of federal and state highways.

Objective:

To manage as Special Recreation Management Areas (SRMA) lands where the presence of high quality natural resources and current or potential demand warrants intensive use practices to protect the area for its scientific, educational and/or recreational values.

Determination:

1. The following areas will be designated as SRMAs - Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), Lunar Crater Volcanic Field (39,680 acres), Railroad Valley Wildlife Management Area (15,470 acres), Rhyolite (460 acres), Tybo-McIntyre (80 acres), Moores Station (if acquired), Pritchards Station (if acquired), and Fish Lake (if acquired).

2. Land uses which are incompatible with the areas values (see SOPs)will not be authorized (see Maps 30 & 31). Utility corridors will not be designated. Vehicle use will be limited to existing roads and trails (except on open unvegetated sand areas) (see Maps 49 and 50). Fluid mineral leasing will be allowed subject to a stipulation against surface occupancy (see Maps 57 & 58). Withdraw all SRMAs from mineral entry.

Objective:

To manage as an Extensive Recreation Management Area (ERMA), emphasizing dispersed recreation use, all lands not requiring intensive management of recreational uses.

Determination:

1. Designate the Tonopah Extensive Recreation Management Area, including the 6,026,251 acres not within an SRMA. Develop minimal facilities necessary to protect the environment and to meet the needs of dispersed recreational uses.

2. Facility sites (camp grounds, interpretive sites, etc.) developed in support of the ERMA will be withdrawn from mineral entry when developed (estimate of 60 acres). Fluid mineral leasing will be allowed subject to a no surface occupancy stipulation. Discretionary land uses (see SOPs) which are incompatible with the area's values will not be authorized.

Objective:

To establish Back-Country Byways to facilitate visitation to less-frequented public lands and to showcase areas of scenic, wildlife, natural, cultural, and recreational interest.

Determination:

Designate the Emigrant Pass, Lunar Crater Volcanic Field and Morey-Hot Creek as Back-Country Byways.

Objective:

To manage for a full range of recreation opportunities.

Determination:

1. Manage 90,370 acres for primitive and 339,120 acres for semi-primitive non-motorized recreation opportunity settings (see Maps 43 and 44). These lands will be managed for VRM Class II, closed to off-highway vehicle use, closed to mineral leasing, and withdrawn from mineral entry. Discretionary actions not appropriate within primitive/semi-primitive settings will not be authorized.

2. Manage 465,725 acres for semi-primitive motorized recreation opportunity settings (see Maps 43 and 44). Within these lands, off-highway vehicle use will be limited to existing roads and trails, no competitive events will be authorized, and no utility corridors will be designated.

WILDERNESS

Objective:

To return all Wilderness Study Areas released by Congress to multiple use.

Determination:

1. Wilderness Study Areas (see Maps 41 and 42) released by Congress will be managed as proposed in other programs. All applications will be subject to environmental review and stipulations applied on an individual basis prior to authorization. A total of 90,370 acres will be managed for primitive values. A total of 245,780 acres will be managed for semi-primitive non-motorized values. These areas will be closed to off-highway vehicle use and mineral leasing, and withdrawn from mineral entry. No land uses (see SOPs) will be authorized which are not appropriate within primitive/semi-primitive settings.

2. A total of 268,385 acres with semi-primitive motorized values will have off-highway vehicle use limited to existing roads and trails. No competitive events will be allowed in semi-primitive non-motorized areas. There will be no utility corridors in primitive or semi-primitive areas.

UTILITY CORRIDORS

Objective:

To identify utility corridors which minimize conflicts with resource values and facilitate locating of major utility system components.

Determination:

A total of 500 miles of transportation and utility corridors will be designated. To avoid sensitive resources, utility corridors will avoid all Class II VRM areas, primitive areas, semi-primitive areas, special recreation management areas, and ACECs. Except for a utility corridor on the east side of Railroad Valley and the corridor north of U.S. Highway 6, the corridors will be the same as shown on Maps 25 and 26.

FLUID MINERALS

Objective:

To provide the opportunity for fluid mineral exploration and development using appropriate stipulations to allow for the preservation and enhancement of fragile and unique resources.

Determination:

1. A total of 5,428,001 acres will be open to fluid mineral leasing under terms and conditions of the standard lease form.

2. Close 454,700 acres to fluid mineral leasing. Mineral leasing will be allowed with a no surface occupancy stipulation on 158,000 acres. Apply seasonal restrictions on fluid mineral leasing activities on 50,400 acres of seasonal wildlife habitat (see Maps 57 and 58) (see wildlife habitat determinations).

3. The following areas will be closed to mineral leasing: deer winter range (16,280 acres), sage grouse habitat (5,600 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (40 acres), Jumbled Rock Petroglyph (10 acres), Berlin Town Site (704 acres), Project Faultless (2,560 acres), primitive areas (90,370 acres) and semi-primitive non-motorized areas (339,120 acres). (Some acreages overlap, affecting total.)

4. Mineral leasing will be allowed with a no surface occupancy stipulation on: bristlecone pine stand (3,600 acres), Amargosa Oasis ACEC (490 acres), Railroad Valley riparian areas (3,720 acres), wild horse and burro waters (64,000 acres), Cane Man Hill ACEC (680 acres), Rhyolite (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Springs-Gravel Bar ACEC (8,840 acres), Tybo-McIntyre Charcoal Kilns (80 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Valley Sand Dunes (6,740 acres), Lone Mountain ACEC (14,400 acres), Lunar Crater ACEC (39,680 acres), the Sump (1,600 acres), and facilities in the ERMA (60 acres). (Some acreages overlap, affecting total.)

5. The determinations made for mineral leasing will also apply to geophysical exploration. Waivers to these determinations will be considered if the identified resource values can be protected.

LOCATABLE MINERALS

Objective:

To provide the opportunity for exploration for, and development of locatable minerals in areas identified as open to the operation of the mining laws. Such activity will be consistent with the continuation of natural systems and encouraging species diversity

while preventing undue and unnecessary degradation.

Determination:

1. A total of 5,533,099 acres will be open to operation under the mining laws.

2. A total of 547,139 acres will be withdrawn from mineral entry (see Maps 36 and 37).

3. Continue the withdrawal of 21,139 acres. Withdraw an additional 526,000 acres from mineral entry as follows: bighorn sheep lambing grounds (1,440 acres), important wild horse/burro water sources (8,320 acres), Lunar Crater ACEC (39,680 acres), Amargosa Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,470 acres), Rhyolite ACEC (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Springs-Gravel Bar ACEC (8,480 acres), Tybo-McIntyre ACEC (80 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), facilities in the ERMA (70 acres), primitive areas (90,370 acres), semi-primitive non-motorized areas (339,120 acres), Mountain View Arrastra (20 acres), the Cistern (20 acres), and Moores Station Petroglyph (40 acres). (Some acreages overlap, affecting total.)

3. A total of 10,863 acres will be classified and closed to mineral entry.

4. Appropriate off-site mitigation will be required when mining actions cause a loss of habitat exceeding thresholds identified in Appendix 4.

MINERAL MATERIALS

Objective:

To meet public demand for mineral materials using appropriate safeguards to allow for the preservation of natural systems.

Determination:

1. A total of 5,428,001 acres will be open to mineral materials disposal under standard terms and conditions.

2. Close 612,700 acres to the disposal of mineral materials. Apply seasonal restrictions on sales of mineral materials on 50,400 acres of seasonal wildlife habitat. These restrictions are in the same locations shown on Maps 57 and 58 (see wildlife habitat determination).

3. The following areas will be closed to mineral material disposal: deer winter range (16,280 acres), sage grouse habitat (5,600 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (40 acres), Jumbled Rock Petroglyph (10 acres), Berlin Town Site Park (704 acres), Project Faultless (2,560 acres), primitive areas (90,370 acres), semi-primitive non-motorized areas (339,120 acres), bristlecone pine stand (3,600 acres), Amargosa Oasis ACEC (490 acres), Railroad Valley riparian areas (3,720 acres), wild horse and burro water sources (64,000 acres), Cane Man Hill ACEC (680 acres), Tybo-McIntyre Charcoal Kilns (80 acres), Rhyolite (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Springs-Gravel Bar ACEC (8,840 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Valley Sand Dunes (6,740 acres), Lone Mountain ACEC (14,400 acres), Lunar Crater ACEC (39,680 acres), the Sump

(1,600 acres), and facilities in the ERMA (60 acres).

4. Mineral materials from existing authorized sources and open new pits as necessary, unless such actions conflict with the above restrictions.

NON-ENERGY LEASABLE MINERALS

Objective:

To provide opportunities for the leasing of solid leasable minerals while maintaining appropriate safeguards to allow for the preservation of natural systems and species diversity.

Determination:

1. A total of 5,428,001 acres will be open to non-energy mineral activities under standard terms and conditions.

2. Close 612,700 acres to non-energy mineral leasing. Apply seasonal restrictions on non-energy mineral leasing on 50,400 acres of seasonal wildlife habitat (see Maps 57 and 58).

3. The following areas will be closed to mineral leasing: deer winter range (16,280 acres), sage grouse habitat (5,600 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (40 acres), Jumbled Rock Petroglyph (10 acres) Berlin Town Site (704 acres), Project Faultless (2,560 acres), primitive areas (90,370 acres), semi-primitive non-motorized areas (339,120 acres), bristlecone pine stand (3,600 acres), Amargosa Oasis ACEC (490 acres), Railroad Valley riparian areas (3,720 acres), wild horse and burro water sources (64,000 acres), Cane Man Hill ACEC (680 acres), Tybo-McIntyre Charcoal Kilns (80 acres), Rhyolite (460 acres), Stormy-Abel ACEC (12,320 acres), Trap Springs-Gravel Bar ACEC (8,840 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Valley Sand Dunes (6,740 acres), Lone Mountain ACEC (14,400 acres), Lunar Crater ACEC (39,680 acres), the Sump (1,600 acres), and facilities in the ERMA (60 acres).

FIRE MANAGEMENT

Objective:

To protect natural resources from unacceptable damage by fire in a cost-effective manner with a high regard for private property and personal safety. Promote resource management through prescribed burns to maintain the natural component of the ecosystem.

Determinations:

1. All wildfires in Management Zone 1 will receive aggressive initial attack, to contain all in intensity levels 1 through 6 within 10 acres. A definition of intensity levels is given in the Glossary. The salt desert shrub is a fire independent ecosystem that maintains vigor and composition without fire. To maintain the natural component of the ecosystem, all wildfire in Management Zone 2 will be allowed to burn if the fire is within an approved wildfire prescription. Sagebrush/piñon pine-juniper is a fire dependent ecosystem and adverse ecological changes usually result from total fire exclusion (e.g., piñon/juniper encroachment of grassy areas or declining grassland productivity because of increased sagebrush cover). If the fire is not within the approved prescription all wildfire in Management Zone 2 will receive aggressive initial attack. A burn plan and wildfire prescription will be prepared for fire management zone 2 to promote a more natural fire regime. All fire zones are shown on Maps 63 and 64.

2. Wildfires that threaten life and property, will be kept to one acre or less 100 percent of the time, utilizing the most cost effective and efficient suppression action. This will include town sites, developed mines, ranches, powerlines, and other structures and property.

3. Wildfires that enhance resources, such as waterfowl nesting areas, woodland areas, and livestock and wildlife foraging areas will be allowed to burn within an approved burn plan and wildfire prescription. Wildfires that are burning out of an approved wildfire prescription and threaten resources, such as riparian areas, desirable winter range (salt desert shrub), sage grouse strutting grounds, threatened and endangered plant species sites, archaeological sites and sensitive forage plant species (bitterbrush and mountain mahogany) will be kept to minimum acreage utilizing suppression action which could suppress and or divert the fire and be cost effective.

ALTERNATIVE 4 - PREFERRED ALTERNATIVE

This is the preferred alternative. This alternative provides for the development of renewable and non-renewable resources, while ensuring that the preservation and enhancement of fragile and unique resources will occur.

WATERSHED

Objective:

To maintain or improve watershed conditions in the resource area.

Determinations:

1. Prepare activity plans (Allotment Management Plans, Habitat Management Plans and Herd Management Area Plans) in watersheds where there is a high potential to reduce erosion, and identify site specific resource objectives, rehabilitation techniques, and the designing and placement of improvements such as check dams and seedings. These watersheds are: Oasis Valley, Wagon Johnnie, Hot Creek, Sand Springs, Stone Cabin, Morey, Ione, Monitor, Ralston, Little Railroad Valley, Reveille, San Antone, Hunts Canyon, Big Smoky, and Little Hot Creek (see Maps 3 and 4).

VEGETATION

Objective:

To maintain or improve the condition of the vegetation resource.

Determinations:

1. Manage the vegetation resource for the desired plant communities. General descriptions of desired plant communities are described by ecological site in Appendix 2. Descriptions of specific desired plant communities will be developed at each key area based on the ecological potential and other information gathered at the site.

VISUAL RESOURCE MANAGEMENT

Objective:

To designate VRM classes and manage to maintain existing scenic qualities.

Determinations:

1. Manage the resource area for the following VRM classes * (see Maps 11 and 12):

Class I Areas:	0 acres
Class II Areas:	469,170 acres
Class III Areas	218,000 acres
Class IV Areas:	5,403,931 acres

*See Appendix 3 for definition of Visual Resource Management Classes.

2. Manage scenic quality along five identified highways as VRM Class III areas (SR 374 between Beatty and Death Valley National Monument, SR 276 Between Scotty's Junction and Death Valley National Monument, SR 266 between Lida Junction and the California border, SR 265 between Blair Junction and Silver Peak, and SR 264 between U.S. 6 and the California border).

3. Manage the Lunar Crater ACEC (39,680 acres) and the primitive and semi-primitive non-motorized areas (see appendix 12 for definitions) (429,490 acres) as VRM Class II areas.

WILDLIFE

Objective:

To maintain and enhance wildlife habitat and provide for species diversity.

Determinations:

1. Manage mule deer, antelope, elk, and bighorn sheep habitat in good or better condition.

2. Prepare or revise Habitat Management Plans (HMP) for the entire resource area. Priorities are as follows:

   a. Maintain the Railroad Valley Wildlife Management Area (WMA) HMP, and Bullfrog Hills HMP (Bare Mountain, Sawtooth, and Amargosa Habitat Areas).

   b. Revise the Silver Peak HMP.

   c. Prepare HMPs: **High Priority**: San Antone/Big Smoky Valley, Fish Lake Valley (White Mountains), Monte Cristo/Lone Mountain, **Medium Priority**: Ralston/Monitor Valleys, Stonewall/Gold Mountains, Sylvania/Palmetto, Montezuma, Railroad Valley (except for the WMA). **Low Priority**: Ione Valley/Ralston Hills, Pancake Range/Sand Springs, Hot Creek, Reveille/Kawich, Stone Cabin/Little Fish Lake Valley.

3. On 28,920 acres of mule deer winter range, restrict all activities (see Standard Operating Procedures (SOPs) for Environmental Review and Management) which might be disturbing to mule deer between January 15 and May 1 (see Maps 59 and 60).

4. On 25,880 acres of sage grouse habitat, restrict all activities (see SOPs) which might be disturbing to sage grouse between February 15 and May 1 (see Maps 59 and 60).

5. Manage bighorn sheep habitat (324,000 acres) (see Maps 14 and 15) by: prohibiting construction of new roads to communication facilities and limiting vehicle use to existing roads and trails; prohibiting off-highway vehicle events within one-quarter mile of Specie Spring; restricting, between February 1 and May 15, all activities (see sops) in lambing areas which might be disturbing to lambing (17,480 acres); prohibiting land uses (see SOPs) that are incompatible with bighorn sheep lambing areas at Stonewall Falls

and Little Meadows; and withdrawing 1,440 acres from mineral entry.

6. Maintain antelope habitat in good or better condition, allow for augmentation of antelope numbers and develop water sources.

7. Animal damage control will be targeted at the individual offending animal only. There will be no preventative control unless authorized by the BLM authorized officer.

8. Appropriate off-site mitigation will be considered during reviews of plans of operations when locatable minerals actions exceed thresholds identified in Appendix 4.

SPECIAL STATUS SPECIES

Objective:

To protect, restore, enhance, and expand habitat of special status species.

Determinations:

1. Manage Non-Intensive Category III desert tortoise habitat (70,600 acres), (see Map 19) by limiting vehicle use to existing roads and trails. In cases in which new road construction is discretionary, no new roads will be constructed in those washes in which there will be an adverse impact on the desert tortoise.

2. Manage the Railroad Valley Springfish and its critical habitat at North Spring and Reynolds Spring (80 acres) (see maps 59 and 60) by allowing mineral leasing with a no surface occupancy stipulation and no land uses will be authorized which are incompatible with the area's values. (see Standard Operating Procedures (SOP) for listing of these uses.)

3. Designate the existing Railroad Valley Wildlife Habitat Management Area (15,390 acres) and adjacent Railroad Valley springfish critical habitat as an ACEC (80 acres) (see Map 41).

4. Designate the Amargosa-Oasis riparian area, habitat for the Oasis Valley speckled dace and the Amargosa toad, as an ACEC (490 acres) (see Map 42). Management of this area includes: exclusion of livestock and wild burros, no land uses will be authorized (see SOPs) which are incompatible with the area's values, limitation of vehicle use to existing roads and trails, acquisition of non-consumptive appropriative water rights, allowing mineral leasing with a no surface occupancy stipulation, and withdrawal from mineral entry. Acquire adjacent private lands containing desirable riparian values through exchange or purchase.

RIPARIAN HABITAT

Objective:

To manage riparian habitats for proper functioning condition.

Determinations:

1. Manage for 70 percent streambank stability ratings and 70 percent streambank cover ratings on all 32.8 miles of streamside riparian areas listed on Table 3 C in Chapter 3 (see Maps 18 and 19).

2. Manage for prevention of riparian habitat deterioration on streams with 70 percent streambank stability and 70 percent streambank cover ratings, and on streams with improving trend.

3. Where streams have ratings better than 50 percent, but less than 70 percent, for streambank stability and for streambank cover, design and

implement management practices to establish ratings of 70 percent for streambank stability and for streambank cover in five years. If the desired improvement does not occur and livestock and wild horses/burros are the cause, exclude livestock and wild horses/burros.

4. Where streambank cover and streambank stability ratings are less than 50 percent, and livestock and wild horses/burros are the cause, modify management, or exclude livestock and wild horses/burros.

5. Manage for trout habitat on Barley Creek, Barker Creek, Clear Creek, Corcoran Creek, Jefferson Creek, Moores Creek, Mosquito Creek, Perry Aiken Creek, Pine Creek, Silver Peak Pond Creek, and Troy Creek, a total of 800 acres. Acquire minimum water flows in accordance with State water law to support trout. Close to vehicle use a 300-foot wide area each side of the above streams. Vehicle use will be allowed on existing roads.

6. Acquire 160 acres of private lands, if economically prudent and the owner is agreeable, which includes trout habitat at Moores Station.

FORESTRY AND VEGETATION PRODUCTS

Objective:

To provide vegetation products for consumptive use where compatible with other resource values.

Determinations:

1. Authorize the harvest of woodland products in greenwood cutting areas. Limit authorization to 1,000 cords per year. If Kawich and Silver Peak Wilderness Study Areas are released by Congress, greenwood cutting areas will be established within those areas. Greenwood cutting areas at Palmetto Wash, Silver Peak, and Palmetto will continue to be used until 10 to 20 percent of the canopy cover remains. Establish new greenwood cutting areas at Bellehelen, Montezuma, Hot Creek, Squaw Wells, Piper Peak, and Kawich. Expand cutting areas at Palmetto and Palmetto Wash. Commercial harvest will only be allowed in Piper Peak, Kawich, and Palmetto Wash. Close the greenwood cutting area at Baxter Springs.

2. Permit the harvest of deadwood in all accessible woodland acreage.

3. Do not allow the harvest of Joshua trees in the area that can be seen from Highway 95 near Goldfield. Commercial harvest of Joshua trees will only be allowed for salvage operations incidental to surface disturbance. Until a complete inventory is available to determine the sustained yield and a new level of authorization can be calculated, limit non-commercial authorizations to 600 trees per year.

4. Permit cutting of Christmas trees and limit harvest to 1,000 trees per year. Allow only non-commercial harvest.

5. Permit the collection of common desert plants and seeds. Creosote bush harvest will only be authorized northwest of Nevada State Route 267 in Nye County. No sales of live desert plants will remove more than 10 percent of the existing canopy cover.

LIVESTOCK GRAZING MANAGEMENT

Objective:

To implement the recommendations of the rangeland monitoring and evaluation program to resolve identified resource conflicts and/or concerns in a way which will achieve multiple-use management.

Determinations:

1. Manage 22 allotments as "I" category, three allotments as "M" category, and nine allotments as "C" category (see Appendix 8).

2. Livestock will be excluded from 12,163 acres. In addition to 11,444 acres currently excluded, livestock will be excluded from the following areas: Amargosa-Oasis ACEC (490 acres), Barley Creek (32 acres), Clear Creek (16 acres), Corcoran Creek (32 acres), Hunts Canyon Creek (32 acres), Little Meadows Creek (85 acres), and Ox Springs Wash (32 acres). Livestock use may be allowed in exclusion areas in a prescribed manner to achieve or maintain resource objectives.

WILD HORSES AND BURROS

Objective:

To manage wild horses and burros at levels that will maintain and preserve a natural thriving ecological balance consistent with other resource needs within herd management areas.

Determinations:

1. Manage wild horse and burro populations to maintain and preserve a natural thriving ecological balance and multiple-use relationship in herd management areas (see Maps 22 and 23).

2. Remove excess animals when initial herd size or AML (see Table 2 A) and a thriving natural ecological balance are exceeded. When removals are necessary animals will be reduced to a point which will allow three years of population increase before again reaching the initial herd size or AML.

3. Close a one-fourth mile radius area around Mud Spring to off-highway vehicle events (see Map 52).

4. Apply for appropriative water rights and/or assert public water reserves on water sources as they are identified or as they become available in Herd Management Areas.

5. Lands identified for disposal which are within Herd Management Areas may be disposed of if there will be no adverse impacts to wild horses/burros (see Maps 28 and 29).

CULTURAL RESOURCES

Objective:

To protect archaeological, historical, paleontological, and socio-cultural resources and manage for information, public values, and conservation.

Determinations:

Classify and manage cultural resources for their information potential, conservation, and public values. See Appendix 13 for a complete description of these management guidelines.

1. Manage for Information Potential:

   Rockshelters; Late Pleistocene/Western Pluvial Lakes Tradition Sites; sites on valley bottoms lacking Pleistocene lake features; historic sites lacking clear association with either established mining districts, locally important

ranching operations or major transportation routes; and sites on upper and lower bajada slopes.

Specific management determinations are as follows:

a. Manage the Stormy-Abel Site Complex (12,320 acres) by prohibiting range improvements or other actions that would increase grazing in the vicinity of Storm, Coyote, and Abel Springs. Limit vehicle use to existing roads and trails until the information potential of this complex can be recovered through a comprehensive research and data recovery program. Once the research program has recovered the available information, the above land use restrictions will be lifted.

b. Manage the Trap Springs-Gravel Bar Complex (8,480 acres) to maximize data recovery and salvage of cultural resources, while allowing for oil and gas production. This will be done by developing and implementing a comprehensive data recovery program; prohibiting gravel sales on the gravel bar; continue the closure of the Gravel Bar Road and limiting vehicle use to existing roads and trails in the rest of the area. Once the research program has recovered the available information, the above land use restrictions will be lifted.

2. Manage for Public Values:

The following resource types, and/or areas will be managed for public values: Rock art (petroglyphs and pictographs), charcoal kilns, historic sites associated with locally important events or persons.

Specific management determinations are as follows:

a. Fluid mineral leasing will be allowed with a no surface occupancy stipulation to: Jumbled Rock Petroglyphs (10 acres), Moores Station Petroglyph, and Mountain View Arrastra (40 acres) (see Map 59).

b. Withdraw from mineral entry: Moores Station Petroglyphs (40 acres) and Mountain View Arrastra (40 acres) (see Map 39).

c. No land uses (see SOPs) will be authorized which are incompatible with cultural values and limit vehicle use to existing roads and trails at: Moores Station Petroglyph (40 acres) and Mountain View Arrastra (40 acres) (see Map 32).

d. Designate 61 acres as the Rhyolite ACEC to protect historic structures (see Map 42). Manage historic structures for public uses. Land disposal will not be allowed. No land uses will be authorized which are incompatible with the area's values (see SOPs). Limit vehicle use to existing roads and trails. Provide for signing and barricades to exclude people from unsafe structures. Establish a SRMA. Allow mineral leasing with a no surface occupancy stipulation. Withdraw from mineral entry.

e. Designate 80 acres (20 acres around each set of kilns) as the Tybo-McIntyre Charcoal Kilns ACEC to protect historic structures (see Map 41). Manage historical values for conservation and public values. No land uses will be authorized which are incompatible with the area's special values (see SOPs). Improve access roads and

limit vehicle use to existing roads and trails. Develop visitor use facilities and establish a SRMA. Allow mineral leasing with a no surface occupancy stipulation. Withdraw from mineral entry.

3. Manage for Conservation:

   Rock shelters with datable deposits; stratified sites; late Pleistocene/western pluvial lakes tradition sites; historic sites associated with established mining districts, locally important ranching operations or major transportation routes; and sites containing paleoenvironmental data.

   Specific management determinations are as follows:

   a. Designate 680 acres as the Cane Man Hill ACEC to protect prehistoric values (see Map 42). No land uses will be authorized that re incompatible with the areas values (see SOPs). Limit vehicle use to designated roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw from mineral entry. Manage cultural resources for conservation and information.

LANDS AND RIGHTS-OF-WAY

Objective:

To make lands available for community expansion and private economic development and to increase the potential for economic diversity.

Determinations:

1. Make available a total of 297,000 acres of public lands for potential disposal (see Maps 28 and 29). This total includes 43,760 acres of the 50,040 acres identified for disposal in Alternative 1, 28,314 acres of proposed and allowed agricultural entries, and 224,926 additional acres.

2. Retain for the purposes of resource management those public lands previously identified for disposal within the Amargosa-Oasis ACEC, riparian areas along Perry Aiken Creek, Jefferson Creek, and deer winter range along Chiatovich Creek. (see Alternative 1).

3. If the original entrant or the entrant's assignee fails to "prove up" under the agricultural land laws, lands classified for agricultural entry will be disposed of only under the sale and exchange authorities.

4. Acquire private lands, if economically prudent and if the owner is agreeable, through exchange and/or purchase at Moores Station (160 acres), Pritchards Station (160 acres), Lockes Ranch (480 acres), Fish Lake (600 acres), and Amargosa-Oasis ACEC (280 acres) (see Maps 28 and 29). All acquired lands will be managed in accordance with the RMP and activity plans.

5. In right-of-way avoidance areas, rights-of-way and other discretionary lands actions will be granted only if no feasible alternative routes are available. Any such grants, leases, or permits will include appropriate stipulations to protect the area's special values. The following right-of-way avoidance areas will be established (see Maps 32 and 33):

a. Seasonal Restrictions: on deer winter range between January 15 and May 1 (28,920 acres), on sage grouse habitat between February 1 and May 1 (26,000 acres), and on bighorn sheep habitat between February 1 and May 15 (17,480 acres) for a total of 72,400 acres.

b. Rights-of-way allowed within the following areas will have to be compatible with the special values of the area: no new roads will be authorized in desert tortoise habitat if there will be an adverse impact to tortoise (70,600 acres), bighorn sheep lambing grounds, (1,440 acres), Moores Station Petroglyph (40 acres), Mountain View Arrastra (20 acres), Lunar Crater ACEC (39,680 acres), Amargosa-Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,470 acres), Rhyolite ACEC (61 acres), Tybo-McIntyre Charcoal Kilns ACEC (80 acres), Clayton Valley Sand Dunes SRMA (2,500 acres), and Crescent Sand Dunes SRMA (6,740 acres) for a total of 168,641 acres. (Some areas overlap, affecting total.)

c. New roads for communication facilities will not be allowed within bighorn sheep habitat (324,000 acres).

d. Communication sites will not be authorized within the Lone Mountain ACEC.

e. All other lands within the resource area in which there are no unresolvable conflicts with other resource values will be open to consideration for linear or areal rights-of-way, leases, and land use permits.

6. No right-of-way exclusion areas will be established.

7. A total of 38,380 acres will be withdrawn from mineral entry (see Maps 39 & 40).

8. Continue the withdrawal of 9,469 acres (the withdrawal of Railroad Valley will be reduced from 14,710 acres to 3,040 acres and 440 acres will be added to the withdrawal to protect nearby riparian areas). Withdraw an additional 28,911 acres from mineral entry as follows: bighorn sheep lambing grounds (1,440 acres), Gold Point (60 acres), Lunar Crater ACEC (25,600 acres), Amargosa-Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Rhyolite (61 acres), Tybo-McIntyre ACEC (80 acres), Mountain View Arrastra (20 acres), Moores Station Petroglyph (40 acres), and Railroad Valley (440 acres).

9. Continue the classification of 10,844 acres as suitable for sale or lease under appropriate authority. Terminate all classifications under the Small Tract Act and Classification and Multiple Use Act, and classify an additional 19,272 acres proposed for agricultural entry for a total of 30,116 acres.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACECs)

Objective:

To protect sensitive resource values through formal designation and recognition in combination with other resource values.

Determinations:

1. Designate the Lunar Crater Volcanic Field (39,680 acres) as an ACEC to protect important geological features (see Map 41). No land uses will be authorized which are incompatible with

the area's values (see SOPs) Limit vehicle use to existing roads and trails. Establish a Special Recreation Management Area in the ACEC. Allow mineral leasing with a no surface occupancy stipulation. Withdraw 25,600 acres from mineral entry. Conduct validity exams on all Plans of Operations within the ACEC.

2. Designate 490 acres as the Amargosa-Oasis ACEC to protect riparian values and the habitats of special status species (see Map 42). Acquire non-consumptive appropriative water rights. Exclude livestock and wild burros from riparian vegetation. No land disposal will be allowed. Acquire adjacent private lands through exchange or purchase. No land uses will be authorized that are not compatible with the area's values (see SOPs). Limit vehicle use to existing roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw from mineral entry.

3. Designate 680 acres as the Cane Man Hill ACEC to protect prehistoric values (see Map 42). No land uses (see SOPs) will be authorized that are incompatible with the area's values. Limit vehicle use to designated roads and trails. Allow mineral leasing with a no surface occupancy stipulation. Withdraw from mineral entry. Manage cultural resources for conservation and information.

4. Designate 14,400 acres as the Lone Mountain ACEC to protect habitat representative of Nevada's species diversity (see Map 42). No land uses (see SOPs) will be authorized which are incompatible with the area's values. No communication sites will be authorized. Limit vehicle use to existing roads and trails.

5. Designate 15,470 acres as the Railroad Valley ACEC to protect riparian areas, wildlife habitats, and threatened species habitat (see Map 41). Acquire non-consumptive appropriative water rights. Continue to exclude livestock from 2,317 acres. No land uses (see SOPs) will be authorized which are incompatible with the area's values. A utility corridor through a portion of the ACEC will be designated below the Grant Range. Acquire 480 acres of private lands through exchange or purchase at Lockes Ranch. Limit vehicle use to existing roads and trails in the ACEC. Establish a Special Recreation Management Area. Allow fluid mineral leasing with a no surface occupancy stipulation on 3,480 acres. Reduce the existing withdrawal to mineral entry from 14,710 acres to 3,040 acres, and withdraw an additional 440 acres of riparian area at Lockes Pond.

6. Designate 61 acres as the Rhyolite ACEC to protect historic structures (see Map 42). Manage historic structures for public uses. Land disposal will not be allowed. No land uses (see SOPs) will be authorized which are incompatible with the area's values. Limit vehicle use to existing roads and trails. Provide for signing and barricades to exclude people from unsafe structures. Establish a Special Recreation Management Area. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

7. Designate 80 acres (20 acres around each set of four kilns) as the Tybo-McIntyre Charcoal Kilns ACEC to protect historic structures (see Map 41). No land uses (see SOPs) will be authorized which are incompatible with the area's special values. Improve access roads and limit vehicle use to existing roads and trails. Develop

visitor use facilities and establish a SRMA. Allow mineral leasing with a no surface occupancy stipulation. Withdraw the ACEC from mineral entry.

RECREATION

Objective:

To ensure protection of important resource values and to allow for off-highway vehicle use.

Determinations:

1. Designate 4,840,811 acres as open to unrestricted vehicle use, 820,000 acres as limited (restrictions limiting use to existing roads, trails, and washes, seasonally or by type of user), and 430,290 acres as closed to all vehicle uses (see Maps 51 and 52).

2. The following areas will be closed to vehicle use: Gravel Bar Road; streamside riparian areas (800 acres); primitive areas (90,370 acres) and semi-primitive non-motorized areas (339,120 acres).

3. In the following areas vehicles will be limited to existing roads and trails: desert tortoise habitat (70,600 acres), bighorn sheep habitat (324,000 acres), Lunar Crater ACEC (39,680 acres), Amargosa Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,470 acres), Rhyolite ACEC (61 acres), Stormy-Abel Prehistoric District (12,320 acres), Trap Springs-Gravel Bar Prehistoric District (8,840 acres), Tybo-McIntyre ACEC (80 acres), the Sump (1,600 acres), Moores Station Petroglyph (40 acres), Mountain View Arrastra (20 acres), and semi-primitive motorized areas (464,725 acres). (Some areas overlap affecting totals.)

4. The following areas will be closed to competitive events: Specie Spring (160 acres), Mud Spring (160 acres), Moores Station Petroglyph (40 acres), Mountain View Arrastra (20 acres), Lunar Crater ACEC (39,680 acres), Amargosa Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Lone Mountain ACEC (14,400 acres), Railroad Valley ACEC (15,470 acres), Rhyolite ACEC (61 acres), Tybo-McIntyre ACEC (80 acres), the Sump (1,600 acres), Clayton Valley Sand Dunes (2,500 acres), and Crescent Sand Dunes (6,740 acres).

5. Competitive events will be limited to existing roads and trails in the Joshua tree area viewable from Highway 95 near Goldfield.

6. Competitive events are seasonally restricted on 72,400 acres of wildlife habitat (see wildlife habitat determinations).

Objective:

To manage as Special Recreation Management Areas (SRMA) where the presence of high quality natural resources and current or potential demand warrants intensive use practices.

Determinations:

1. The following areas will be designated as SRMAs: Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), Lunar Crater ACEC (39,680 acres), Railroad Valley Wildlife ACEC (15,470 acres), Rhyolite ACEC (61 acres), Tybo-McIntyre ACEC (80 acres). Moores Station (if acquired), Pritchards Station (if acquired) and Fish Lake (if acquired).

2. No land uses (see SOPs) will be authorized which are incompatible with the areas' values. Vehicle use will be

limited to existing roads and trails (except on unvegetated sand areas). Fluid mineral leasing will be allowed subject to a no surface occupancy stipulation.

Objective:

To manage as an Extensive Recreation Management Area (ERMA), emphasizing dispersed recreation use, all lands not requiring intensive management of recreational uses.

Determinations:

Designate the Tonopah Extensive Recreation Management Area including the 6,026,570 acres not within a SRMA. Develop minimal facilities necessary to meet the needs of dispersed recreational uses and to protect the environment.

Objective:

To establish Back-Country Byways to facilitate visitation to less-frequented public lands, and to showcase areas of scenic, wildlife, natural, cultural, and recreational interests.

Determinations:

Designate the Emigrant Pass, Lunar Crater Volcanic Field, and Morey-Hot Creek Back-Country Byways.

Objective:

To provide for a full range of recreation opportunities varying from activities enhanced by or dependent on roads to activities dependent on roadless areas.

Determinations:

1. Manage 90,370 acres for primitive and 339,120 acres for semi-primitive non-motorized recreation opportunity settings (see Maps 43 and 44). These lands will be closed to off-highway vehicle use and managed for Class II VRM. All uses authorized within these lands will be reclaimed to a naturally appearing condition upon completion of the project.

2. Except for the Kawich and Piper Peak wood cutting areas, manage 464,725 acres for semi-primitive non-motorized recreation opportunity settings. Within these lands off-highway vehicle use will be limited to existing roads and trails and no competitive events will be authorized.

WILDERNESS

Objective:

All Wilderness Study Areas released by Congress will be returned to multiple-use.

Determinations:

1. Wilderness Study Areas (see Maps 41 and 42) released by Congress for multiple-use purposes will be managed as proposed in other programs. All applications will be subject to environmental review and stipulations applied on a case by case basis. A total of 90,370 acres will be managed for primitive values, and 245,780 acres will be managed for semi-primitive non-motorized values; these lands will be managed for Class II VRM, and closed to off-highway vehicle use; all authorized uses will be reclaimed to resemble a natural state upon the completion of a project.

2. A total of 268,385 acres will be managed for semi-primitive motorized

values. Limit vehicle use to existing roads and trails. No competitive events will be authorized. Greenwood cutting areas will be established at Kawich, and Piper Peak. All management authorizations will be subject to environmental review and stipulations applied on an individual basis.

UTILITY CORRIDORS

Objective:

To facilitate the placement of major transportation and utility systems passing through the resource area and to minimize conflicts with other resource values.

Determinations:

A total of 668 miles of Transportation and Utility corridors will be designated (see Maps 27 and 28). Sensitive resources will be avoided. All primitive areas, all Special Recreation Management Areas, and all ACECs except for a portion of the Railroad Valley ACEC will be avoided.

FLUID MINERALS

Objective:

To provide the opportunity for fluid mineral exploration and development using appropriate stipulations to allow for the preservation and enhancement of fragile and unique resources.

Determinations:

1. A total of 5,985,036 acres will be open to fluid mineral leasing subject to the terms and conditions of the standard lease form.

2. Close 3,264 acres to fluid mineral leasing. Allow fluid mineral leasing with a no surface occupancy stipulation on 53,801 acres. Apply seasonal restrictions on fluid mineral leasing activities on 49,000 acres of seasonal wildlife habitat (see Maps 59 and 60) (see wildlife habitat determinations).

3. The following areas will be closed to mineral leasing: Berlin Town Site (704 acres) and Project Faultless (2,560 acres).

4. The following areas will be open to mineral leasing with a no surface occupancy stipulation: Amargosa-Oasis ACEC (490 acres), a portion of the Railroad Valley ACEC (3,480 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (40 acres), Jumbled Rock Petroglyph (10 acres), Cane Man Hill ACEC (680 acres), Rhyolite (61 acres), Tybo-McIntyre Charcoal Kilns (80 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), and Lunar Crater ACEC (39,680 acres).

5. The determinations made for mineral leasing will also apply to geophysical exploration. Waivers to these determinations will be considered if the identified resource values can be protected.

LOCATABLE MINERALS

Objective:

To provide the opportunity for exploration and development of locatable minerals consistent with the preservation and enhancement of fragile and unique resources in areas identified as open to the operation of the mining laws.

Determinations:

1. A total of 6,022,605 acres will be open to the operation of the mining laws (see Maps 39 and 40).

2. A total of 38,380 acres will be withdrawn from mineral entry.

3. Continue the withdrawal of 9,469 acres (the withdrawal of Railroad Valley will be reduced from 14,710 acres to 3,040 acres and 440 acres will be added to the withdrawal to protect nearby riparian areas). Withdraw an additional 28,911 acres from mineral entry as follows: bighorn sheep lambing grounds (1,440 acres), Gold Point (60 acres), Lunar Crater ACEC (25,600 acres), Amargosa-Oasis ACEC (490 acres), Cane Man Hill ACEC (680 acres), Rhyolite (61 acres), Tybo-McIntyre ACEC (80 acres), Mountain View Arrastra (20 acres), Moores Station Petroglyph (40 acres), and Railroad Valley (440 acres).

4. A total of 30,116 acres will be classified and closed to mineral entry.

5. Appropriate off-site mitigation may be considered, during plan of operation review for locatable mineral actions, when loss of habitat exceeds thresholds identified in Appendix 4.

MINERAL MATERIALS

Objective:

To meet public demand for mineral materials on a case-specific basis while applying appropriate environmental safeguards.

Determinations:

1. A total of 5,985,036 acres will be open to mineral material disposal under standard terms and conditions.

2. Continue to provide mineral materials from existing authorized sources. Open new pits as necessary.

3. Close 57,065 acres to the sale of mineral materials. Apply seasonal restrictions on mineral materials on 49,000 acres of seasonal wildlife habitat (see Maps 59 and 60) (see wildlife habitat determinations).

4. The following areas will be closed to mineral material disposal: Berlin Town Site (704 acres), Project Faultless (2,500 acres), Amargosa Oasis ACEC (490 acres), portions of the Railroad Valley ACEC (3,480 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (40 acres), Jumbled Rock Petroglyph (10 acres), Cane Man Hill ACEC (680 acres), Tybo-McIntyre ACEC (80 acres), Rhyolite (61 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), and Lunar Crater ACEC (39,680 acres).

NON-ENERGY LEASABLE MINERALS

Objective:

To provide maximum opportunity for the leasing and development of solid leasable minerals, and apply appropriate environmental safeguards.

Determinations:

1. A total of 5,985,036 acres will be open to non-energy mineral activities under standard terms and conditions.

2. Close 57,065 acres to non-energy mineral leasing. Apply seasonal restrictions on non-energy mineral leasing on 49,000 acres of seasonal wildlife habitat (see Maps 59 and 60) (see wildlife habitat determinations).

3. The following areas will be closed to mineral leasing: Berlin Town Site (704 acres), Project Faultless (2,500 acres), Amargosa Oasis ACEC (490 acres), portions of the Railroad Valley ACEC

(3,480 acres), Mountain View Arrastra (40 acres), Moores Station Petroglyph (40 acres), Jumbled Rock Petroglyph (10 acres), Cane Man Hill ACEC (680 acres), Tybo-McIntyre ACEC (80 acres), Rhyolite (61 acres), Clayton Valley Sand Dunes (2,500 acres), Crescent Sand Dunes (6,740 acres), and Lunar Crater ACEC (39,680 acres). (Some areas overlap, affecting acreage total.)

FIRE MANAGEMENT

Objective:

To protect natural resources from unacceptable damage by fire in a cost-effective manner with a high regard for private property and safety. Promote resource management through prescribed fire to maintain the natural component of the ecosystem.

Determinations:

1. All wildfires in Management Zone 1 will receive aggressive initial attack, to contain all of them within 10 acres in intensity levels 1 through 6. A definition of intensity levels is given in the Glossary. The salt desert shrub is a fire independent ecosystem that maintains vigor and composition without fire. To maintain the natural component of the ecosystem, all wildfire in Management Zone 2 will be allowed to burn if the fire is within an approved wildfire prescription. The sagebrush/piñon pine-juniper is a fire dependent ecosystem and adverse ecological changes usually result by total fire exclusion (e.g., piñon/juniper encroachment of grassy areas or declining grassland productivity because of increased sagebrush cover). If the fire is not within the approved prescription all wildfire in Management Zone 2 will receive aggressive initial attack. A burn plan and wildfire prescription will be prepared for fire management zone 2 to promote a more natural fire regime. All fire zones are shown on Maps 63 and 64.

2. Wildfires that threaten life and property, will be kept to one acre or less 100 percent of the time utilizing the most cost effective and efficient suppression action. This will include town sites, developed mines, ranches, powerlines, and other structures and property.

3. Wildfires that enhance resources, such as waterfowl nesting areas, woodland areas, and livestock and wildlife foraging areas will be allowed to burn within an approved burn plan and wildfire prescription. Wildfires that are burning out of an approved wildfire prescription and threaten resources, such as riparian areas, desirable winter range (salt desert shrub), sage grouse strutting grounds, threatened and endangered plant species sites, archaeological sites and sensitive forage plant species (bitterbrush and mountain mahogany) will be kept to minimum acres utilizing suppression action which could suppress and or divert the fire and be cost effective.

ALTERNATIVES CONSIDERED BUT NOT ANALYZED

Several alternatives were considered in addressing specific issues in the resource area. Among these were alternatives which promoted unconstrained production or protection and targeted specific resources. Such alternatives were considered inappropriate because they failed to meet the principles of multiple-use and sustained yield which is one of the planning criteria of the Federal Land Policy and Management Act of 1976.

Alternatives dealing with the allocation of forage and removing livestock from allotments with less than satisfactory range conditions were considered, but eliminated from further study. Current decisions from the *Esmeralda-Southern Nye RMP/EIS*, the *Tonopah MFP* and the *Tonopah Grazing EIS* have adequately analyzed the issue, provide adequate managerial guidance, and allow for changes based upon monitoring and evaluation.

An alternative was requested to be considered which would have addressed the Las Vegas Valley Water District's applications for diversion of water from 27 underground sources in the resource area. These filings are part of a total of 146 applications filed in the Ely District, Las Vegas District, and the Tonopah Resource Area of the Battle Mountain District. The BLM has protested all the applications in accordance with State water law. As of July, 1992, no permits were granted on these applications. Because the granting of water rights is controlled by the State of Nevada and BLM has submitted protests on each filing in accordance with State law, and because the BLM has no authority to determine if the water rights are to be granted or not it was determined that dealing with this issue in the RMP would not be proper. Whenever permits are granted and right-of-way applications are received, a detailed environmental documentation of the project will be undertaken.

STANDARD OPERATING PROCEDURES

The following standard operating procedures will be applied to this plan.

Environmental Review and Management

In compliance with NEPA and CEQ regulation, BLM will prepare site-specific environmental reviews before actions proposed in this RMP/EIS are implemented or prior to approval of any project authorized on the public lands. The environmental reviews provide site specific assessments of the impacts from implementing these actions. As appropriate, these reviews are documented in Categorical Exclusion Reviews, Environmental Assessments and Decision Records, or Environmental Impact Statements and Records of Decision. In addition, the environmental review identifies mitigating measures necessary to reduce adverse impacts of implementing a project or proposed action.

All future authorizations will be in conformance with the RMP. Existing authorizations will be brought into conformance when they are renewed.

Seasonal restrictions on activities which are included in this RMP to prevent disturbing of wildlife will apply to the following authorizations: fluid mineral leasing, non-energy mineral leasing, mineral material sales, geophysical prospecting, right-of-way construction, off-highway vehicle events, construction of range improvements, activities authorized under the Recreation and Public Purposes Act (R&PP Act), and vegetation sales. In

general, maintenance of rights-of-way, range improvement projects, and other facilities will not be restricted. Locatable mineral exploration and development activities will be encouraged to abide by seasonal restrictions but cannot be required to do so.

Determinations that state: "No land uses will be authorized which are incompatible with an area's values" will include such activities as right-of-way grants, activities authorized under the Recreation and Public Purposes Act, off-highway vehicle events, vegetation sales, range improvement projects, non-energy mineral leasing, mineral material sales and geophysical prospecting, except where compatible or of benefit to the resources being protected. Rights-of-way and other discretionary lands actions will be granted in avoidance areas only if no feasible alternative routes are available. Any such grants, leases, or permits will include appropriate stipulations to protect the area's special values. This will not affect maintenance of existing projects or rights-of-way. Livestock grazing will continue to be authorized unless specifically excluded.

Air Resources

Air quality is protected by the establishment of mitigation measures designed to prevent deterioration of air quality prior to authorizing actions. This ensures meeting State goals for air quality and limits allowable emissions from existing and new point or non-point sources. Common mitigation measures include: watering roads and disturbed areas, the use of scrubbers/sprays, covered storage areas, and other measures to reduce emissions and pollutant concentrations to meet or exceed the standards of the Nevada Division of Environmental Protection.

Soil and Water Resources

Soil and water resources are protected by the establishment of mitigation measures designed to maintain or improve soil productivity and prevent or minimize soil erosion and floodplain sediment damage prior to authorizing actions and during the allotment monitoring and evaluation process. To meet administrative needs the BLM will acquire appropriative water rights by applying for available water rights according to Nevada water law, or by assertion of a public water reserve.

Visual Resource Management

VRM classes are delineated in the RMP based on an inventory conducted in accordance with BLM visual management procedures (Manual 8400). The individual VRM classes provide management objectives to be implemented as a part of all activities authorized in the *Tonopah RMP*. The overall goal is to protect or enhance the visual and natural aspect and attributes of the public lands while minimizing the impacts of authorized activities.

Visual resources will continue to be evaluated, using the Contrast Rating process, as a part of activity and project planning. These evaluations will consider the significance of the proposed project and the visual sensitivity of the affected area. Stipulations will be developed and attached to project authorizations to maintain designated visual resources management classes. Stipulations may include requirements to locate activity sites behind topographic features, modify access routes, color buildings and equipment, develop in phases, etc. If VRM class objectives cannot be met, the impacts to visual resources will be detailed in the project level environmental assessment and used by the authorized officer as a factor in the decision to authorize or deny a proposed action.

To comply with BLM policy for Wilderness Study Areas (WSA), WSAs will be managed as interim VRM Class II areas until Congress makes final wilderness decisions for Nevada BLM WSAs. This will comply with the policy to manage WSAs to avoid impairment of existing wilderness values. As of March 30, 1989, limitations were placed on the authorization of activities which cause surface disturbance that require reclamation to restore an area to a pre-project condition. Following Congress's final wilderness decision, designated wilderness areas will be managed as VRM Class I areas. Lands not designated as wilderness will be managed according to the VRM classes designated in the RMP/ROD decisions.

Special Status Species

The Endangered Species Act (ESA) of 1973, as amended, directs the Secretary of Interior to develop and implement recovery plans for the conservation and survival of endangered or threatened species. In addition, any actions funded or carried out by the BLM which may affect listed or proposed species are reviewed in cooperation with the U.S. Fish and Wildlife Service and Nevada Department of Wildlife.

It is BLM policy to carry out special status candidate species management consistent with multiple-use for conservation of candidate species and their habitats and ensure that actions authorized or funded do not contribute to the need to list any of these species as threatened or endangered.

A desert tortoise inventory will be required prior to any surface disturbing activity including plans of operations for locatable minerals, mineral leasing, off-highway vehicle events, rights-of-way, etc. on 70,600 acres of Non-Intensive Category III desert tortoise habitat.

In accordance with the Biological Opinion on livestock grazing in desert tortoise habitat, the following stipulation has been placed in affected grazing licenses: "Within Non-Intensive Category III desert tortoise habitat, livestock use may occur March 1 to October 14, as long as forage utilization does not exceed 40 percent on key perennial grasses, forbs and shrubs. Between October 15 and February 28, forage utilization shall not exceed 50 percent on key perennial grasses and 45 percent on key shrubs and perennial forbs."

Fish and Wildlife

Fish and wildlife habitat will continue to be evaluated on a basis as part of project-level planning. Such evaluation will consider the significance of the proposed project and the sensitivity of fish and wildlife habitat in the affected area. Stipulations will be attached as appropriate to assure compatibility of projects with management objectives for fish and wildlife habitat. Habitat improvement projects will be implemented where necessary to stabilize or improve unsatisfactory or declining wildlife habitat condition. Such projects will be identified through habitat management plans or other activity plans.

Sufficient forage and cover will be provided for wildlife. Forage and cover requirements will be incorporated into allotment management plans and will apply to specific areas of primary wildlife use.

Range improvements generally will be designed to achieve both wildlife and range objectives. Existing fences will be modified and new fences will be built so as to allow wildlife passage. Water trough heights will allow for wildlife usage and bird ladders will be installed. Project requirements are listed in the livestock grazing management section.

Guzzlers constructed for wildlife will be designed to be protected from domestic livestock and wild horses/burros.

In accordance with BLM guidelines for domestic sheep management in big horn habitat, no domestic sheep grazing will be authorized in bighorn sheep habitat.

Chukar and other upland game habitats will be maintained and expanded through development of wildlife waters.

Generally, no land disposal will be allowed within two miles of sage grouse nesting areas.

Forestry and Vegetative Products

The areas available for woodland harvest will be subject to the specific restrictions and withdrawals required by this RMP.

No broadleaf trees, dead or green, will be harvested because of their superior value to wildlife for nest trees.

Piñon nut gathering will be authorized on an individual basis including Wilderness Study Areas released by Congress for multiple-use purposes.

Salvage of vegetative products may be authorized on areas subject to ground disturbing activities.

Livestock Grazing Management

Resource improvement planning will be in accordance with the procedures outlined in *BLM Handbook H-1741-1 Renewable Resource Improvement and Treatment Guidelines and Procedures*.

The grazing management program assigns priorities to management efforts using a selective management approach. Under this approach grazing allotments are categorized into "I," "M," and "C" management categories. The objectives for these categories are to: 1) *maintain* (M) the current satisfactory conditions; 2) *improve* (I) the current unsatisfactory conditions; or 3) manage *custodially* (C) while protecting existing resource values. Management priority will be given first to "I" allotments, second to "M" allotments, and third to "C" allotments (see Appendix 8).

Range improvement projects will be addressed in environmental documents and will be constructed in accordance with BLM Manual 9113. Existing access, off road travel, or temporary roads will be used as much as possible. Temporary roads will be rehabilitated after use is completed.

The clearing of vegetation from project sites will be restricted to the minimum amount necessary to properly and safely complete the project.

All disturbed areas will be rehabilitated, where such action is necessary and/or practical, to replace ground cover and prevent erosion.

The standard fence design used to control cattle movement in areas inhabited by resident and migratory populations of deer, horses and/or antelope, will be 42 inches in height. Fences in these areas will consist of three barbed wires and a smooth bottom wire. The spacing of the wires starting from the ground will be 16 inches, 22 inches, 30 inches and 42 inches. Line posts shall be spaced at a distance of 16.5 feet between each post. Fences in bighorn sheep habitat will be a three strand fence with spacing 20, 35, and 39 inches from the ground with a smooth bottom wire. Special design standards will be in accordance with the *BLM Handbook H-1741-1*. All fences will be designed to assure a minimum of impacts to wildlife, wild horses/burros, recreation, and visual resources.

Developed spring sources will be fenced and water provided for livestock and/or wild horses/burros away from the source. Water will be left at the spring source for

wildlife use as required by Nevada Revised Statute.

Maintenance of livestock management structures will be accomplished by the livestock operator through cooperative agreements as specified in the BLM's 1982 *Rangeland Improvement Policy* (USDI, BLM, Oct. 1982).

Alteration of sagebrush areas either through application of herbicides, prescribed burning, or by mechanical means will be in accordance with procedures specified in the Western States' Sage Grouse Guidelines and the Memorandum of Understanding between the Nevada Department of Wildlife and the Nevada BLM. All vegetation treatment projects will be coordinated with the Nevada Department of Wildlife at least one year in advance of implementation of the project.

Application of herbicides, such as 2,4-D, on proposed treatment areas to reduce sagebrush and other plant species will be in accordance with procedures established in BLM Manual 9222 to prevent impairment of non-target species.

Vegetative manipulation that will alter the potential natural plant composition will not be allowed in riparian areas. This includes the introduction of non-native species.

Wild Horse And Burro Management

It is the intent of the BLM to manage wild horses and burros and their habitat within areas occupied in 1971. Management is to be accomplished in a manner designed to achieve a thriving natural ecological balance and multiple-use relationship with other resource users.

Management of the wild horses and burros will also be guided by Herd Management Area Plans (HMAPs). The plans will be developed through consultation and coordination with interested parties and will be coordinated with livestock, wildlife, and other resource plans. The management plans will include, but not be limited to, discussions of range conditions, range trends, habitat requirements, dietary needs, water requirements, and wild horse reproductive capabilities.

Cultural Resources

The National Historic Preservation Act of 1966, as amended, the Archaeological and Historic Preservation Act of 1974, the Archaeological Resources Protection Act of 1979, the American Indian Religious Freedom Act of 1978, FLPMA, and Executive Order 11593 provide for the protection and management of cultural resources. These laws are implemented through the following Federal Regulations: 36 CFR 60, 36 CFR 800, 43 CFR 7, and 43 CFR 8365.1-5, (a)(1).

The BLM is required to identify, evaluate, and protect cultural resources on public lands under its administration and to ensure consideration of cultural resources prior to initiation of proposed BLM authorized activities. If an area will be in any way affected by those activities, a cultural resources inventory will be conducted. In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and the Programmatic Agreement among the Nevada BLM, the Nevada Division of Historic Preservation and Archaeology, and the Advisory Council on Historic Preservation, National Register eligibility determinations are made in consultation with the Nevada Division of Historic Preservation and Archaeology. A determination of effects to those eligible properties from the proposed project is also made in consultation with the Nevada State Historic Preservation Office.

Avoidance of cultural properties is the preferred mitigation. However, avoidance is inappropriate if, 1) the project will not

create on-going activity in the area, or 2) the project will greatly increase access into the area. Either of these conditions could lead to increased vandalism and/or accidental damage. Significant cultural properties to be protected through avoidance will be marked in the field and monitored on a periodic basis.

If eligible properties cannot be avoided, appropriate mitigating measures will be developed in consultation with the Nevada Division of Historic Preservation and Archeology, and the President's Advisory Council on Historic Preservation. No action will be authorized until these agencies are consulted.

Cultural properties without National Register eligibility determinations will be treated as eligible properties until such determinations can be made.

Federal agencies are required to consider the views of Native Americans when a proposed undertaking may be in conflict with traditional lifeways/religious values. The Native American Religious Freedom Act requires consultation with Native American religious and secular leaders to identify geographic areas which may be associated with traditional lifeway/religious practices.

Lands

Land tenure adjustments are discretionary. No lands will be disposed of unless they are identified in this RMP and meet certain criteria.

In order for public land to be sold, it must meet one of the following criteria set forth in Section 203(a) of the *Federal Land Policy and Management Act of 1976*:

--the land is difficult or uneconomic to manage as a part of the public lands; and it is not suitable for management by another Federal department or agency.

--the land was acquired for a specific purpose: and it is no longer required for that, or any other, Federal purpose; or

--disposal of the land will serve important public objectives that can be achieved prudently or feasibly only if the land is removed from public ownership; and these objectives outweigh other public objectives or values that will be served by maintaining the land in Federal ownership.

Site-specific decisions regarding land ownership adjustments within the resource area are to be made based on whether the lands are needed for BLM programs, or whether or not they are considered more valuable for other purposes. The following criteria are applied to site-specific determinations for lands that are within areas identified for disposal or acquisition:

A. Public resource values, including, but not limited to:

--threatened, endangered, or sensitive species habitat
--sites or places eligible for inclusion on the National Register of Historic Places
--mineral potential
--wilderness areas and areas being studied for wilderness
--riparian areas, including springs and seeps
--nesting/breeding habitat for game birds/animals
--big game seasonal habitat
--recreation potential
--visual resources
--other designations authorized by law

B. Manageability

C. Suitability for development

D. Accessibility of the land for public use

E. Encumbrances

F. Social and economic impacts of land tenure adjustments

G. Consistency with other agency/governmental entity plans and policies.

These land ownership adjustment criteria are considered in environmental analyses and decisions prepared for specific adjustment proposals.

In addition, no disposal are allowed within two miles of sage grouse strutting grounds, and no disposal for agricultural purposes are allowed on lands with agricultural soil ratings of Class IV or higher, or with soils having a high susceptibility to erosion. The disposal of land will not be allowed if it would fragment ownership patterns.

Public lands identified for disposal may be made available for sale, exchange, agricultural entry, lease, or patent for recreation or public purposes. Some lands identified for disposal may not be sold due to lack of interest, and some may be retained in Federal ownership as a result of site specific application of the land ownership adjustment criteria.

Exchanges are authorized under Section 206 of the Federal Land Policy and Management Act (FLPMA) of 1976. Exchanges must be in the public interest. The selected public land must be identified in an approved land use plan for disposal, and the offered private land may be identified in an approved land use plan for acquisition.

There are three authorities for the disposal of public land specifically for agricultural purposes: the Desert Land Act, the Carey Act, and the General Allotment Act. Disposal of public land for agricultural purposes must meet the requirements of one of the three acts listed above and have a supporting permanent water source permitted by the Nevada State Engineer.

All patents are issued subject to valid prior existing rights.

Public lands within areas which have not been identified for disposal are retained in Federal ownership and are managed by BLM. Unless these lands are dedicated to a specific use or uses, or are included within avoidance or exclusion areas, they are available for rights-of-way, FLPMA leases, and airport leases. Because color-of-title and mineral entry patents are non-discretionary actions, all public lands meeting specific regulatory criteria may be patented by these methods.

Land use permits and leases are granted under the authority of Section 302(b) of the Federal Land Policy and Management Act of 1976. Permits are issued for short-term, low-impact uses of the public lands. Leases are a long-term management tool used particularly where future disposal or dedication to another particular land use is contemplated. In general, all lands within the resource area which have not been dedicated to a specific use or uses are open to consideration for land use permits and non-major leases. Permit and lease applications are evaluated on an individual basis. The same public resource values considered prior to disposal are considered prior to the issuance of a permit or lease. A major lease will need to be identified in an approved land use plan.

It is BLM policy to identify, abate, and prevent unauthorized use of the public lands. Existing unauthorized uses of the public lands are resolved through termination, short-term permit, lease, sale, exchange, or by other appropriate means.

Since the passage of the Federal Land Policy and Management Act in 1976, the BLM has been in the process of reviewing all withdrawals and classifications of public lands. All new proposed withdrawals must be identified in an approved land use plan.

Unless the land has been dedicated to a specific use or uses, public land within the resource area is available for consideration for linear right-of-way for access and for utility transportation and distribution purposes. Such land is also available for areal right-of-way purposes.

Prior to issuance of a right-of-way authorization, a site specific environmental analysis is performed which considers, among other things, threatened, endangered, or sensitive species habitat; sites or places eligible for inclusion on the National Register of Historic Places; wilderness areas and areas being studied for wilderness; riparian areas; nesting/breeding habitat for animals; big game seasonal habitat; visual resources; and other considerations mandated by law.

Designated right-of-way corridors within the resource area are three miles wide except where topographic constraints exist. Grants for rights-of-way are still required for facilities placed within designated corridors. Designation of a corridor does not mean that future rights-of-way are restricted to corridors, nor does it mean that there is a commitment by the BLM to approve all right-of-way applications within corridors. Proposed disposal of land within corridors are analyzed to determine impacts these proposed disposal might have on future right-of-way activities.

Recreation

A broad range of outdoor recreation opportunities will continue to be provided on all segments of the public land, subject to the demand for such opportunities and the need to protect other resources. Special Recreation Management Areas, areas of concentrated use and existing facilities will receive first priority for operation and maintenance funds. Investment of public funds for new recreation developments will be permitted only on land identified to remain in public ownership.

Recreation resources will continue to be evaluated on an individual basis as part of activity and project-level planning. Such evaluations will consider the sensitivity of, and the impacts on recreation resources in the affected area. Stipulations will be attached as appropriate to assure the compatibility of projects with recreation management objectives.

Special recreation use permits will be authorized on an individual case basis.

Decisions regarding the designation of areas open, limited (restricted) and closed to motorized vehicle access will be made in the RMP. An exception to designations in the RMP is emergency designations which may be necessary due to:

1. The need to minimize damage to soil, watershed, vegetation or other resource values.

2. The need to minimize harassment of wildlife or the degradation of wildlife habitat, especially habitat for threatened or endangered species.

3. The need to promote user safety and protect the visiting public from hazardous situations.

Areas which are not designated as limited or closed will remain open for motorized vehicle use.

Existing mines will be closed to off-highway vehicle use by the public. The areas will remain closed until they have been reclaimed and the reclamation bond has been released.

Public land within areas closed to motorized vehicle use will be closed year-long to all forms of motorized vehicle use except for emergency or authorized vehicles.

Vehicle use in Wilderness Study Areas (WSA) is currently managed as limited to existing (1980 inventory) roads, trails and ways. This is a temporary designation which overrides the decisions in the RMP, pending final decisions by Congress with regard to WSAs. Following final Congressional action, those areas designated as wilderness will be closed to motorized vehicle use subject to valid existing rights and authorized nonconforming uses. Motorized vehicle use on lands which are not designated as wilderness will be managed according to the decisions in the approved *Tonopah RMP* and ROD.

The Battle Mountain District has published a camping stay limit (effective August 6, 1990) for the public lands it manages: Persons may occupy a site, or multiple sites within a five mile radius on public lands which have not been closed or otherwise restricted to camping, for a total period of not more than fourteen days during any twenty-eight day period. Following the fourteen-day period persons may not relocate within a distance of five miles of the site just previously occupied until completion of the twenty-eight day period. The fourteen-day stay limit may be reached either through a number of separate visits or through a period of continuous occupation of a site.

All BLM lands that are not limited in the RMP are open to all individual, commercial and competitive outdoor recreation uses. Opportunities for exploring the back-country by vehicle, hunting, camping, sightseeing, and hiking are encouraged. There are no nationally significant river segments as defined in the National Wild and Scenic Rivers Act of 1964.

Areas of Critical Environmental Concern

A plan of operations will be required for any proposed mechanized disturbance to be caused in a designated ACEC during the search for, or the exploitation of locatable minerals.

Wilderness

BLM policy requires that all Wilderness Study Areas (WSA) be managed in accordance with the provisions of FLPMA Section 603 (c) and the Interim Management Policy for Lands Under Wilderness Review (IMP) so as not to impair their suitability for preservation as wilderness. The IMP provides management policies for WSAs between the time of WSA designation (11/15/80) and final decisions by Congress regarding these areas. The IMP contains specific management direction for activities in WSAs which may occur or be authorized.

The alternatives in the *Tonopah RMP* have been developed under the assumption that there will be no wilderness designations. The actions proposed are those that may take place if the WSAs are released from wilderness consideration by Congress. Some of the determinations are compatible with the IMP and can be implemented while others must await Congress's final determinations. Also some RMP determinations may not comply with the IMP's nonimpairment requirements. These decisions may not be implemented until after Congress's final decision releasing the

non-wilderness lands from the requirements and restrictions included in the IMP Policy.

Should Congress designate wilderness areas, the RMP will be maintained to include these new designations, and to modify determinations which conflict with wilderness management objectives. Management of areas designated as wilderness will be guided by the requirements of the Wilderness Act of 1964, specific enabling legislation, and the BLM's wilderness management procedures. While site-specific management objectives for wilderness areas will be included in future wilderness management plans, certain actions are nondiscretionary, including closure to motorized vehicle use (except for valid existing rights and approved nonconforming uses by permit) and withdrawal from mineral entry.

Fluid Minerals

Oil and gas leases and geothermal leases grant the right to the operator to explore for, and to produce oil and gas. Leases are subject to certain terms and conditions which provide for compliance with applicable laws, ordinances, and regulations pertaining to fire, sanitation, conservation, water pollution, fish and game, safety, protection of property, and reclamation.

In addition to the terms and conditions of the leases, stipulations may be applied to site-specific applications, to provide for stringent environmental protection of conflicting resources. These stipulations are developed by an interdisciplinary team as part of the environmental analysis process.

Since the passage of the Federal Oil and Gas Leasing Reform Act of 1987, all Wilderness Study Areas (WSAs) have been closed to mineral leasing.

Geophysical exploration for oil and gas, and geothermal resources may take place before or after the leasing of the lands. These actions will be reviewed by an interdisciplinary team in the resource area to identify and mitigate resource-related conflicts.

BLM actively encourages and facilitates the private development of public land mineral resources in a manner that satisfies national and local needs, and provides for economically and environmentally-sound exploration, extraction, and reclamation practices.

Land use plans and multiple-use management decisions of the BLM will recognize that mineral exploration and development can occur concurrently or sequentially with relation to other resource uses.

Locatable Minerals

BLM provides for mineral entry, exploration, location, and operations pursuant to the mining laws in a manner that, 1) will not unduly hinder the mineral activities, and 2) assures that these activities are conducted in a manner which will prevent undue or unnecessary degradation of the public land.

Notification to the authorized officer is required on all operations in project areas in which cumulative surface disturbance will be five acres or less. Additional notices require that any previous disturbance must be reclaimed before the operator will be allowed to conduct further operations.

A Plan of Operations and a Reclamation Plan are required in situations in which there will be more than five acres of cumulative surface disturbance in a project area. These two plans are also required for any mining activity on special category lands, such as ACECs and areas closed to off-highway vehicles.

Plans of Operations may be modified by the authorized officer to meet the requirements of the regulations and to prevent undue or unnecessary degradation.

Plans of Operation cannot be approved until Section 106 of the National Historic Preservation Act and Section 7 of the Endangered Species Act have been complied with.

Reclamation of disturbed areas is required for all levels of activity: Casual Use, Notice, or Plan of Operations.

Additional regulatory requirements will be enforced in WSAs through regulations (43 CFR 3802), and through the Interim Management Policy (IMP) for WSAs.

All operations shall comply with Federal and State laws, including those relating to air quality, water quality, solid wastes, fisheries, wildlife and plant habitat, and archaeologic and paleontological resources.

The BLM will conduct validity examinations, reviewing the validity of mining claims to determine if a discovery has been made, under the following conditions:

1) Where a mineral patent application has been filed and a field examination is required to verify the validity of the claim(s).

2) Where there is a conflict with a disposal application, and it is deemed in the public interest to conduct a validity examination; or where the statute authorizing the disposal requires the removal of mining claims that are not valid. If the validity examination made in the latter case were to show that the mining claim was valid, the disposal action could not be completed.

3) Where the land is needed for a Federal program.

4) Where a mining claim is located under the guise of the mining law and flagrant unauthorized use of the land or mineral resource is occurring.

Withdrawals from mineral entry will be enacted only in cases in which there are significant resource values that cannot be adequately protected under the regulations concerning surface management. Such withdrawn acreage will include areas recommended for wilderness designation, areas possessing important historical and cultural resources, and areas set aside for recreational development.

Bonding will be required for all plans of operations to ensure that reasonable reclamation takes place. All operations using cyanide will follow the requirements as outlined in BLM's Nevada Cyanide Management Plan.

The BLM will coordinate each mine plan and mine closure in conjunction with consultations with the Nevada Division of Environmental Protection, Bureau of Reclamation and Regulation. This coordination ensures that the State of Nevada reclamation laws are implemented on Federal and private lands, and that all necessary state permits will be issued and followed.

Mineral Materials

Mineral material disposal will not occur in Wilderness Study Areas.

All mineral material disposal are discretionary. Appropriate terms and conditions are applied to ensure that the permittee will comply with all applicable laws and environmental safeguards.

Disposal to State, county, and municipal governments will generally be processed

through the issuance of free use permits (FUPs).

In all mineral material disposal the BLM will strive, wherever possible, to use existing mineral material pits.

Disposal of such common-variety mineral materials as sand and gravel may not be made from mining claims, unless the date of the mineral materials contract or permit precedes the date of the location of the claim. This policy applies to all types of mining claims including placer, lode, millsite, and tunnel site. Mining claimants may not sell unpurchased mineral materials which are on their unpatented mining claims.

Non-Energy Leasable Minerals

An environmental analysis is conducted on each prospecting permit before the lease is approved. The environmental analysis is prepared by an interdisciplinary team and is used to determine any special stipulations necessary for the protection of surface resources.

Fire Management

The fire management program is guided by the approved Battle Mountain District Fire Management Activity Plan and this RMP.

Every wildfire within the resource area will have an appropriate action taken to suppress it. The action will be planned and executed in such a way as to minimize the costs of suppression and the loss of resources. Such actions must also be consistent with resource management objectives.

There will be no use of fire retardant in riparian areas, WSA's, sensitive visual resource management areas, and structure archeology sites, unless such use is authorized by the authorized officer.

All wildfires will be evaluated by a rehabilitation team, after they are declared out, to determine the actual needs related to the rehabilitation. Corrective measures will be taken to prevent erosion and future resource degradation when it is feasible to rehabilitate areas damaged by actual suppression action. The rehabilitation team will also determine if any fire rehabilitation, including protection from grazing, is needed to revegetate the burned area, and to protect the site from erosion and invasion by undesirable plant species. Emergency fire rehabilitation will follow procedures outlined in *BLM Handbook H-1742-1*.

When identified as the least cost, most effective method, prescribed fire techniques will be used as a resource tool to meet vegetative objectives as stated in this RMP. Prescribed fire can be used to improve wildlife habitat, watershed improvement and other types of vegetative manipulation to meet vegetative objectives. In addition it can be used solely, or in combination with other fuel/vegetative manipulation techniques. When fire is used as a management tool, an approved prescribed burn plan and wildfire prescription must be prepared in advance of planned or unplanned ignition in accordance with *BLM Manual 9214*.Integrated Pest Management

It is the policy of the BLM that all alternatives to integrated pest management must be explored before any pest control program decision is implemented. This includes all pest control programs done under BLM proposals, cooperative projects, or on lands under permit or lease. Consideration must be given to economics, efficacy, and the environment.

Potentially harmful pests must continue to exist in acceptable levels of abundance. The philosophy of integrated pest management is to manage pests rather than to eradicate them.

Hazardous Materials

The BLM will not authorize the disposal of hazardous materials on public lands. When hazardous materials are located on public lands, the following sequence of actions will occur: reporting, necessary site security, coordination of procedural clean-up, and monitoring results of clean-up. Actions taken by the BLM can also include prosecution of those responsible for illegal dumping.

The BLM ensures that the initiators of actions which use hazardous materials on public land have the necessary permits, from the State of Nevada and (if necessary) the Environmental Protection Agency, which are designed to protect the environment. These permits become conditions of approval by the BLM for actions on Federal lands.

RMP IMPLEMENTATION, MONITORING, EVALUATION, AND MAINTENANCE

Implementation of some determinations will begin immediately upon approval of the RMP. An Implementation Schedule will be developed within a reasonable timeframe (90 days) for the remaining determinations. This schedule will establish priorities and give a basis for short-term and long-term budget requests. It will also be used in monitoring and evaluating the approved plan. Monitoring of each resource category will occur annually and will be documented and filed with the approved plan or in a RMP monitoring file. The approved plan will be evaluated every five years or more frequently if determined through monitoring. Plan maintenance will be used to make minor changes in data, including posting of new data and information. Maintenance will be done to keep the plan current and extend its useful life.

CHAPTER 3

AFFECTED ENVIRONMENT

CHAPTER 3

AFFECTED ENVIRONMENT

AIR RESOURCES

Air quality in the Tonopah Resource Area is designated as ''attainment'' (meeting air quality standards) and is managed to prevent significant deterioration.

SOIL RESOURCES

An Order 3 soil survey has been completed on most of the resource area. The information obtained from the soil survey is used for evaluating the land-use potential, establishing potential natural plant communities, and developing reclamation plans. More intensive surveys are needed to formulate site-specific decisions concerning such practices as: water developments, erosion control, vegetative manipulation, agricultural entry and other types of uses.

The soils in the valleys are mainly mineral soils of two types: those which do not have water continuously available for three months when the soil is warm enough for plant growth (Aridisols); and soils showing little evidence of the soil forming process, the development of horizons or layers (Entisols).

In the mountains there are Aridisols and Entisols and some deeper mineral soils with grass cover and a brown surface horizon (Mollisols). Entisols generally occur on steep mountain slopes where erosion is active. They also occur on flood plains and alluvial fans where new material is deposited. The Aridisols and Mollisols are older and occur on more stable alluvial fans and terraces.

Soil loss through wind and water erosion is a normal occurrence throughout the resource area. Portions of certain watersheds exhibit accelerated erosion and possess significant capability for reduction of the erosion rate through various types of land treatments. These watersheds and specific areas with significant capability to reduce erosion are shown on Maps 3 and 4.

WATER RESOURCES

The absence of adequate perennial surface water is the limiting factor in the management of fisheries, wildlife, wild horses and burros, and livestock.

Information on water quality is very limited. Available data indicate that many water sources do not meet the Environmental Protection Agencies minimum standards for drinking water. Often the constituents of concern are inherent in the water as a result of natural processes in the aquifer or surface strata. The principal non-point source water quality problems are the result of streambank erosion and sedimentation.

VEGETATION

There are seven basic vegetation types (see Maps 5 and 6), as follows: salt desert shrub, sagebrush, piñon-juniper woodland, hot desert, alkali meadows and bottoms, mountain mahogany, and riparian areas.

Two different types of vegetation inventories have been conducted. These are Livestock Forage Condition and Ecological Status Inventory. The Livestock Forage Condition inventory was adapted from Phase I Watershed Inventory data collected during the early 1970's. This inventory determined vegetation condition based upon palatability of primary plant species for livestock. This inventory was superseded by the Ecological Site Inventory which bases vegetation condition upon a comparison between the existing and the potential vegetation composition and production for a particular site.

The seven basic vegetation types are shown on Maps 5 and 6 and are further described below:

1. Salt Desert Shrub. This is the most dominant vegetation type amounting to approximately 58 percent of the resource area. This type is more common in Esmeralda County than in northern Nye

County. The ecological sites associated with this type occur mainly in the valleys on alluvial fans and up into the hills in the southern end of the resource area in precipitation zones of 3-5" and 5-8".

In climax condition (Potential Natural Community or PNC) salt desert shrub range is good to excellent winter range for livestock and poor to fair spring, summer and fall range. In its current condition in the resource area this range is only fair to good winter range, very poor spring range and poor to fair summer and fall range. These sites are fair to poor range for big game species.

a. Less than 10 percent of salt desert shrub ecological sites have the potential to produce winterfat or fourwing saltbush. Both shrubs are very palatable and nutritious winter feed for livestock and horses and are easily damaged by spring use. These ecological sites are generally in mid to early seral stage. They are currently dominated by rabbitbrush or halogeton. Winterfat sites in early or mid seral stage often have serious water erosion problems.

b. Over 90 percent of salt desert shrub range has potential to produce mainly the less palatable shrubs such as shadscale, Bailey greasewood and some black greasewood. Condition at these sites is late seral with some mid seral on more productive sites. In its current condition most of the good forage is already gone.

2. Sagebrush. Approximately 22 percent of the resource area is composed of this type making it the second most common type in the resource area. It grows mainly in the mountains and hills and is less common in the southern half of the resource area. In northern Nye County it extends down into the higher elevation valleys (Little Smoky, Little Fish Lake and Reveille Valleys). It grows in the 8-12" and higher annual precipitation zones.

a. The majority of sagebrush range in this resource area is dominated by black sagebrush which is excellent sheep winter forage but poor for horses and cattle. These ecological sites are generally in late seral with some mid seral stage condition on sites with potential to produce more grass. Because the majority of livestock in this resource area are cattle, these sites are relatively unimportant winter range. The sites produce a small amount of grass which is used during the growing season. It is important deer winter range. Deer prefer the more diverse black sage sites in drainages or adjacent to woodlands.

b. Wyoming big sagebrush is the second most common sagebrush ecological site. These sites in PNC are good spring, summer and fall range and poor winter range for livestock and horses. Currently they are in mid seral condition and produce a small amount of grass. Good early spring and late summer range is rare in the resource area. Some of this Wyoming big sagebrush range is suitable for crested wheatgrass seeding which would provide some spring, summer and fall forage. It is important deer winter range but, in its current condition it does not provide a diverse shrub mix for forage.

3. Piñon-Juniper Woodlands. Approximately seven percent of the resource area is composed of this type. It occurs in the mountains and is less common in Esmeralda County. It occurs on the Hot Creek, Kawich, Grant, Pancake ranges, and Squaw Hills, Silver Peak and Palmetto Mountains. Understory vegetation is sparse and usually is black sagebrush or big sagebrush. Average annual precipitation is above 12". Most livestock grazing occurs on open areas in woodland country. Cut or burned areas

provide lots of good winter forage for deer. Heavily wooded areas provide little forage.

4. Hot Desert. Approximately four percent of the resource area is composed of this type. It occurs from Scottys Junction south in Esmeralda County. The hot desert type is located in the valleys and low hills. The salt desert shrub type occurs on the higher hills. Annual precipitation is 3-5" and 5-8". These sites are usually in late seral condition. Use occurs on saltbush and grasses.

5. Alkali Meadows and Bottoms. Approximately three percent of the resource area is composed of this type. It occurs on valley bottoms through out the resource area. Major areas are Railroad Valley, Sarcobatus Flat, the north end of Big Smoky Valley, Alkali Flat and Fish Lake Valley. These areas are fair spring and summer range in current condition. These sites have up to 85 percent grass, but it is coarse and less desirable than the cool season bunch grasses on adjacent sites. Great basin wildrye would grow on this site in PNC but it has been grazed out. These sites are usually in mid-seral stage. Annual precipitation is 3-8".

6. Mountain Mahogany. Less than one percent of the resource area is composed of this type. It occurs in the mountains adjacent to Piñon-Juniper woodlands and is less common in Esmeralda County. Small amounts occur in the Silver Peak Range and Palmetto Mountains. Most is in the Grant, Kawich, Reveille and Pancake ranges. Annual precipitation is above 12". These areas are generally too steep or high for livestock use. Mountain mahogany is good big game forage.

7. Riparian Areas. Less than one percent of the resource area is composed of this type. It occurs along streams and springs.

VISUAL RESOURCE MANAGEMENT (VRM)

Visitors to the resource area are attracted to its wide open spaces and vistas. US Highway 95 traverses the resource area from north of Coaldale to south of Beatty. The highway is the main travel route between Las Vegas and Reno affording travelers panoramic views of the topography, north-south trending mountain ranges and intervening basins. The landscapes are dominated by flat playas, level basin fill plains and long sloping alluvial fans which merge upwards into the mountains. The mountain slopes are sheer and angular with extensive rock outcrops.

VRM Classes were established in the *Tonopah MFP* for the east portion of the resource area in 1981. See Appendix 3 for a description of VRM classes.

Visual Resource Inventory Classes were assigned in accordance with *BLM Handbook 8410-1* in 1991 for the west portion of the resource area.

WILDLIFE HABITAT

The resource area is comprised of a broad range of individual and overlapping types of wildlife habitat.

Mule Deer Mule deer inhabit the mountainous portions of the resource area. Habitat in the southern two-thirds of the resource area is considered marginal. These marginal deer ranges are typified by monotypic stands of piñon and juniper, lacking in preferred forage species such as bitterbrush, and serviceberry. A total of 116 study sites have been established to monitor mule deer habitat conditions. Poor conditions are reflected on three percent of the sties, fair conditions on 28 percent, good conditions on 54 percent and 15 percent are in excellent condition.

Summer ranges are in fair condition due to lack of important forb and grass species. In some cases competition exists between deer, livestock, and wild horses/ burros for forbs and grasses during spring and early summer. Perhaps one-third of the deer habitat is poorly utilized due to lack of water.

Winter ranges are in generally good to excellent condition. However, encroachment by piñon-juniper woodland and heavy use of important

browse species by livestock have contributed to deterioration of portions of some winter range. The largest deer concentrations occur on winter ranges on the Toiyabe Bench and the Morey Bench. Human intrusion on winter range is a potential threat to wintering herds from mid January through April.

Antelope Antelope populations have been slowly increasing since the mid 1970's. Antelope occur in small bands mostly in the north half of the resource area. Known use areas include the piñon-juniper foothills during summer months and valley bottoms in winter months. Distribution is heavily dependent upon water availability. Although antelope benefit from livestock water developments, the waters are not maintained when livestock are not present. A total of 45 study sites have been established to monitor antelope habitat conditions. Poor condition is reflected on two percent of the sites, fair condition on 65 percent of the sites, good condition on 33 percent of the sites and none of the sites are in excellent condition.

Desert Bighorn Sheep Bighorn sheep populations occur in several mountain ranges in the resource area. In addition, five other ranges which do not currently support bighorn sheep contain suitable habitat.

Since bighorn generally concentrate within a two mile radius of water during the summer, adequate forage within that radius is the limiting factor. It is crucial to the survival of bighorn in the resource area that critical summer use areas within a two mile radius of water sources remain relatively undisturbed. These areas can be adversely impacted by human intrusions associated with off-highway vehicle events and mining activities. Based on available study information, most of the bighorn habitat is in good condition. A total of 47 study sites have been established to monitor bighorn sheep habitat conditions. Poor conditions are reflected on two percent of the sites, fair condition on 15 percent of the sites, good condition on 53 percent of the sites and 30 percent of the sites are in excellent condition.

Critical bighorn sheep lambing areas have been identified around key waters adjacent to precipitous terrain in bighorn sheep habitat areas. Conflicts with livestock are minimal. Livestock and wild horses do not usually graze in the same areas as bighorn sheep.

Rocky Mountain Elk A huntable population of elk inhabit the Monitor Range (managed by the Toiyabe National Forest). This herd utilizes a small area of BLM administered lands on the slopes of the Monitor Range for winter range. A total of 28 study sites have been established to monitor elk habitat conditions. Poor conditions are reflected on four percent of the sites, fair conditions on four percent of the sites, good conditions on 67 percent of the sites and 25 percent of the sites are in excellent condition.

Waterfowl The Railroad Valley Wildlife Management Area provides limited waterfowl habitat for migrating waterfowl. However, it does provide some nesting habitat.

Sage Grouse Sage grouse are widely scattered (see Map 15) through much of the big sagebrush vegetation type in the northern part of the resource area. Strutting grounds are of primary importance to the management of sage grouse habitat since they serve as focal points for reproduction, and nesting, and brood-rearing activities. Most nests are located within two miles of active strutting grounds. Riparian and wet meadow habitats are also very important to grouse reproduction. Essential foods for grouse chicks are concentrated in these habitats, and hens with chicks tend to concentrate their activities near wet meadows and springs after the first three weeks of chick life. Wintering habitat is characterized by areas of greatest available sagebrush canopy cover.

Raptors There are 13 species of raptors known to nest in the resource area.

SPECIAL STATUS SPECIES (Plants and Animals)

There are several special status species, both plant and animal, in the resource area.

Plants There are no plants listed as threatened in the resource area, although there is potential habitat for the threatened plant, spring loving centaury, which appears to require the springs and riparian areas of the Amargosa River drainage.

Category 1 (C1) is the taxa for which USFWS has sufficient information to indicate that listing is appropriate. No C1 occur in the resource area. Category 2 (C2) (taxa for which the USFWS has information to indicate that listing is possibly appropriate, additional information is being collected) do occur. Priority habitats have not been identified for these plants. They are listed in Table 3 A and known locations are shown on Maps 18 and 19.

TABLE 3 A
CATEGORY 2 PLANTS OF THE TONOPAH RESOURCE AREA

Eastwood milkweed	(*Asclepias eastwoodiana*)
Black wooly-pod	(*Astragulas funereus*)
Current milk-vetch	(*Astragulas uncialas*)
Tecopa bird's beak	(*Cordylanthus tecopensis*)
Spring parsley	(*Cymopterus ripleyi var. saniculoides*)
Tiem's buckwheat	(*Eriogonum tiehmii*)
Pahute green gentian	(*Frasera pahutensis*)
Golden bush	(*Haplopappus graniticus*)
Dune penstemon	(*Penstemon arenarius*)
Bashful penstemon	(*Penstemon pudicus*)
Mono phacelia	(*Phacelia monensis*)
Blaine's fishhook cactus	(*Sclerocactus blainei*)
Jone's globemallow	(*Sphaeralcea caespitosa*)

Animals There are two threatened animals in the resource area, the desert tortoise and the Railroad Valley springfish.

Desert Tortoise

The Mojave population of desert tortoise (*Gopherus agassizii*) is listed as federal threatened and occurs on approximately 70,600 acres at the south end of the resource area (see Map 19). The USFWS has determined this portion of the species range as Non-Intensive Category III habitat. The goal for Non-Intensive Category III desert tortoise habitat is to limit habitat and population declines to the extent possible by mitigating impacts. Direct impacts from grazing include trampling of shelter sites and rest sites. Indirect impacts include loss of cover, change in vegetation and compaction of soils in areas where livestock concentrate. The increasing use of off-highway vehicles is having an effect on tortoise. Direct mortality results from crushing tortoise above ground or in their burrows. The desert ecosystem is also degraded as a result of off-highway vehicle use. The biggest threat to desert tortoise appears to be indiscriminate hunting and collecting. Predation by ravens also causes direct mortality of young tortoise.

The desert tortoise is most active when annual plants are most common. Forage must be sufficient to allow females to accumulate energy reserves for egg production. Egg laying occurs May through July. Hatching occurs from August to October. The hatchlings ignore food and water and begin dormancy shortly after hatching. In the spring tortoise eat forbs and annual grasses. In the late spring and summer they eat dried grasses.

Railroad Valley Springfish

The Railroad Valley springfish (*Crenichthys nevadae*) is listed as federal threatened. It is located in several warm springs in Railroad Valley (see Map 18). All populations are doing well; however, the Nevada Department of Wildlife (NDOW) has reported that encroaching riparian vegetation in the springs may result in degradation of the aquatic habitat. Currently the greatest potential threat to the springfish is loss of waterflow from individual springs caused by broad based

lowering of the water table through interbasin transfer of ground water.

Several candidate animal species also exist in the resource area (see Table 3 B and Maps 18 and 19).

TABLE 3 B
CATEGORY 2 ANIMALS OF THE TONOPAH RESOURCE AREA

Fish Spring pocket gopher	(*Thomomys umbrinus abstrusus*)
San Antonio pocket gopher	(*Thomomys umbrinus curtatus*)
Ferruginous hawk	(*Buteo regalis*)
Swainson's hawk	(*Buteo swainsoni*)
Snowy plover	(*Charadrius alexandrinus nivosus*)
Mountain plover	(*Charadrius montanus*)
White-faced ibis	(*Plegadis chihi*)
Long-billed curlew	(*Numenius americanus*)
White River desert sucker	(*Catostomus clarki intermedius*)
Big Smoky Valley tui chub	(*Gila bicolor ssp.*)
Railroad Valley tui chub	(*Gila bicolor ssp.*)
Fish Lake Valley tui chub	(*Gila bicolor ssp.*)
Monitor Valley speckled dace	(*Rhinichthys osculus ssp.*)
Oasis Valley speckled dace	(*Rhinichthys osculus ssp.*)
Amargosa toad	(*Bufo nelsoni*)
Crescent-Dune aegialian scarab beetle	(*Aegialia crescenta*)

RIPARIAN HABITAT

Riparian habitats represent less than one percent of the resource area. Important streamside riparian habitats have been inventoried and are shown on Maps 18 and 19 and Table 3 C. Inventoried streamside riparian areas have less then 70 percent streambank stability and 70 percent streambank cover ratings. This is primarily due to grazing and trampling by grazing animals and surface disturbance associated with mineral exploration and development. Research has shown that riparian habitats characteristically have a greater diversity of plant and animal species than adjoining areas. Healthy riparian systems filter and purify water as it moves through them, reduce sediment loads and enhance soil stability, provide micro climatic moderation, and contribute to ground water recharge and base flow. Riparian areas around springs and seeps have not been inventoried for condition.

The low and unpredictable precipitation, poor soils, and sparse vegetation would limit riparian area restoration under existing natural conditions. Also consumptive and disruptive resource uses within riparian areas reduces the success of rapid riparian restoration.

The principal consumptive use within riparian areas is grazing. The small tracts of riparian habitat within enormous grazing allotments complicates management. Water sources for livestock management, other than those naturally occurring riparian areas, are limited, thus restricting management options. Also reducing management options are the questions of water rights and limiting access to riparian areas.

TABLE 3 C
SUMMARY OF STREAM HABITAT IN THE TONOPAH RESOURCE AREA

STREAM NAME	MILES ON BLM	YEAR OF SURVEY	% STREAMBANK COVER	% STREAMBANK STABILITY	FISH SPECIES
AMARGOSA RIVER	2.0	1987	75 %	65%	OASIS VALLEY SPECKLED DACE
BARKER CREEK	0.5	1978 1982 1985 1988	89 76 72 73	83 59 55 73	BROOK AND RAINBOW TROUT
BARLEY CREEK	1.0	1977 1985 1988	38 25 25	34 25 25	BROOK, RAINBOW, AND BROWN TROUT
BREEN CREEK	2.4	1989	75	52	
CLEAR CREEK	1.0	1977 1987	50 50	25 25	BROOK AND RAINBOW TROUT
CORCORAN CREEK	1.0	1982 1987	28 25	25 25	RAINBOW AND BROWN TROUT
COTTONWOOD CANYON	1.0	1982 1989	70 63	83 50	
DEEP CREEK	1.0	1982	100	81	
EDEN CREEK	5.0	1978 1982 1989	55 62 66	64 62 76	
HOOPER CANYON	1.0	1977 1982 1989	75 59 52	100 69 70	
HUNTS CANYON	2.0	1982 1989	50 42	75 51	
JEFFERSON CREEK	1.0	1978 1986 1989	69 66 82	69 56 78	RAINBOW TROUT
LITTLE MEADOW	1.0	1989	13	14	

Table Continued on Following Page

TABLE 3 C (Continued)
SUMMARY OF STREAM HABITAT IN THE TONOPAH RESOURCE AREA

STREAM NAME	MILES ON BLM	YEAR OF SURVEY	% STREAMBANK COVER	% STREAMBANK STABILITY	FISH SPECIES
MOORES CREEK	0.5	1977 1981 1985 1988	100 91 71 89	90 81 51 80	RAINBOW, BROOK, AND BROWN TROUT
MOSQUITO CREEK	0.5	1977 1978 1982 1986	66 69 55 55	47 57 32 53	RAINBOW AND BROOK TROUT
OX SPRINGS WASH	0.3	1989	53	26	
PERRY AIKEN CREEK	1.0	1988	84	84	RAINBOW TROUT
PINE CREEK	0.5	1982 1989	50 75	50 75	RAINBOW AND BROWN TROUT
ROCK CREEK	6.2	1987	42	66	
SILVER PEAK POND CREEK	1.0	1989	75	26	RAINBOW TROUT
SOUTH SIXMILE	1.5	no data	no data	no data	
TROY CANYON	1.0	1977 1982	93 87	86 87	BROOK TROUT

Riparian habitats are also affected by mineral exploration, development, and production. Of the riparian areas inventoried, 29 percent are in areas of high potential and 31 percent are in areas of moderate potential for locatable minerals. The practice of conducting exploration within riparian corridors, washes, or upon springs is most prevalent in the west portion of the resource area, where placer operations are conducted. Stipulations may be imposed on Plans of Operation to protect riparian habitat. However, protection of riparian habitat under Notices is more difficult since regulations do not provide the same opportunity to impose stipulations. This produces uncertainty for long-term management or restoration practices.

FORESTRY AND VEGETATIVE PRODUCTS

Piñon-Juniper Woodlands There are an estimated 314,000 acres of piñon-juniper woodlands in the resource area (see maps 5 and 6). Of these, approximately 27,000 acres are accessible, and available for fuelwood harvest outside wilderness study areas (WSAs). The 27,000 "operable" acres are capable of producing 1,185 cords annually on a sustained yield basis. Public demand over the last five years has averaged 675 cords. Unauthorized wood cutting is estimated at 170 cords.

Approximately 141,000 acres of piñon-juniper woodlands are within WSAs. If all piñon-juniper woodlands were released by Congress from WSA status, an additional 14,300 "operable" woodland acres would be available. An additional 530 cords

could then be sold annually on a sustained yield basis.

Dead and down trees may be harvested for firewood anywhere in the resource area, except for WSAs. There are greenwood cutting areas established at: Baxter Springs (380 acres), Palmetto Wash (3,800 acres), Palmetto (2,600 acres) and Silver Peak (2,600 acres). Approximately one-third of the greenwood volume has been removed from these areas.

Joshua Trees Approximately 231,000 acres in the resource area produce Joshua trees. One harvest area near Magruder Mountain, approximately 1800 acres in size, has been established for non-commercial harvest. Currently sales average 120 trees per year. Allowable harvest from this area is estimated at 350 trees per year. No inventory has been conducted to determine the sustained yield production on the total Joshua tree acreage.

LIVESTOCK GRAZING MANAGEMENT

The resource area has 29 grazing permittees/lessees with privileges to graze livestock on 34 allotments covering approximately six million acres (see Maps 20 and 21). The past five years average actual use has been 167,102 animal unit months (AUMs) of authorized grazing use. Grazing allotments are licensed for cattle, sheep or horses with various seasons of use, livestock numbers, and grazing management systems. Livestock grazing practices and range improvement projects have had a substantial influence on rangeland conditions in the resource area.

Livestock grazing has been excluded from critical winter range for mule deer on Morey Bench and Toiyabe Bench. These areas may be grazed by livestock under prescribed conditions after certain habitat conditions have been met.

No conflicts between livestock and Rocky Mountain elk have been documented in the Hunts Canyon Allotment which is used by wintering elk.

Conflicts between livestock and wild horse and burro populations do occur.

WILD HORSES AND BURROS

There are 16 Herd Management Areas (HMA) in the resource area. The boundaries of the HMAs are shown on Maps 22 and 23. The boundaries of the herd areas were established based on the areas of use when the "Wild, Free Roaming Horse and Burro Act" became law in December 1971. Management of wild horses/burros is restricted to these areas and expansion of herd areas is prohibited under the Act. Wild horse and burro census data is shown on Table 3 D.

Water availability is the main limiting factor for wild horses and burros in most of the HMAs. In some HMAs there are no federally owned water rights.

HMAs, such as Montezuma, Paymaster/Lone Mountain, and Stonewall are steep and mountainous. Water availability is poor, and the HMA boundaries are not fenced allowing horses to drift out of the HMAs. Water developments are needed to attract horses and to discourage their drift outside of the HMAs.

Burros create a nuisance for private property owners in Beatty and Springdale, especially in the summer months when range forage becomes sparse. This problem will continue unless a long-term solution can be achieved.

The planned introduction of bighorn sheep on Bare Mountain might create a conflict with burros in that area.

Burro use in Non-Intensive Category III desert tortoise habitat might exceed allowable use levels on important forage plants.

The Dunlap HMA was formerly managed by the Carson City District in combination with the Pilot Mountain HMA. The lead has reverted to the Tonopah Resource Area. No significant management problems exist.

In the Fish Lake Valley HMA four thousand of the 14,000 acres in this HMA were transferred to the U.S. Forest Service under the Nevada Forest Enhancement Act of 1988.

As a result of the Nevada Forest Enhancement Act of 1988, the U.S. Forest Service has management of 75,875 acres of the 104,032 acres which comprise the Little Fish lake Valley HMA.

TABLE 3 D
WILD HORSE AND BURRO CENSUS DATA

Herd Management Area	YEAR				
	1974	1988	1989	1990	1991
Bullfrog	10 horses 63 burros	256 burros	not inventoried	278 burros	not inventoried
Dunlap	not inventoried	not inventoried	74 horses	not inventoried	108 horses
Fish Lake Valley	53 horses 10 burros	not inventoried	7 horses	not inventoried	not inventoried
Gold Mountain	7 horses	49 horses	not inventoried	not inventoried	not inventoried
Hot Creek	25 horses	not inventoried	95 horses	not inventoried	129 horses
Little Fish Lake	25 horses	not inventoried	352 horses	not inventoried	29 horses
Montezuma	96 horses	235 horses	118 horses	165 horses 1 burro	not inventoried
Palmetto	111 horses	84 horses	64 horses 2 mules	not inventoried	not inventoried
Paymaster/ Lone Mountain	45 horses	196 horses	273 horses 1 burro 6 mules	304 horses 3 mules	not inventoried
Reveille	470 horses	143 horses	189 horses	187 horses	145 horses
Sand Springs	6 horses	not inventoried	154 horses	not inventoried	193 horses
Saulsbury	not inventoried	not inventoried	not inventoried	not inventoried	not inventoried
Silver Peak	205 horses	not inventoried	374 horses 3 mules	not inventoried	182 horses
Stone Cabin	860 horses	671 horses	662 horses	886 horses	268 horses
Stonewall	42 horses	85 horses 18 burros	109 horses 17 burros	80 horses 11 burros 2 mules	not inventoried

CULTURAL RESOURCES

The resource area is rich in the number and diversity of cultural properties within its bounds. These properties range in age from Late Pleistocene to historic times, and contain vast amounts of information concerning the prehistory and history of the area. Some of these resources are ideally suited for public interpretation and development.

Almost all cultural inventories in the resource area have been project specific. As a result, portions of some hydrographic basins have been intensively surveyed for cultural resources, while others have received little or no inventory. Because a representative sample of the resource area has not been systematically inventoried as a basis for planning, little is known about the density and distribution of cultural resources, except in those areas that have been subjected to intensive project driven survey. Assignment of sites to management objectives is performed on an individual basis through implementation of the Section 106 process, with the result that most are managed for their information potential. Actions necessary to achieve management objectives also are determined on an individual basis. The following is a summary of cultural and paleontological resources information for the resource area.

1. A Class I cultural resources inventory was completed in 1981. Since that time, Esmeralda County and the southern portion of Nye County have been added to the resource area, and considerable additional Class II and Class III survey has been performed. Consequently, the original Class I inventory is incomplete and outdated and should not be used as a basis for planning.

2. A Class I paleontological resources inventory for the Battle Mountain District was completed in 1987. Although this inventory is now incomplete and outdated, it represents the only information the resource area has on this subject. No project related paleontological surveys have been conducted in the resource area.

3. Less than two percent of the resource area has been inventoried for cultural resources, and the vast majority of these inventories have been driven by efforts to comply with Section 106 of the National Historic Preservation Act. In past years, cultural resources were not evaluated for potential inclusion in the National Register of Historic Places if they could be avoided by project activities. This policy has resulted in the systematic under-recording of potentially significant resources, as well as the need to resurvey and re-record sites to evaluate their National Register potential. In addition, no systematic effort has been made to consult with Native American leaders to identify sites and areas significant for their association with traditional lifeways.

Prehistoric site types known to occur within the resource area include, but are not limited to: long-term habitation sites, temporary camps, task specific sites, pinyon caches, scatters of heat altered rock, rock shelters, petroglyphs and pictographs, rock alignments including "geoglyphs," and quarry sites. Petroglyph sites are excellent for public interpretation objectives, but are also of importance to Native American groups.

Sensitive locations for prehistoric sites include, but are not limited to, areas near permanent and seasonal water sources, upland piñon-juniper zones, and upper slopes. During the Late Pleistocene, lakes existed within eight of the valleys in the resource area. During the Holocene, some of these same areas may have supported marshy environments. These lake margins and marshy areas are highly sensitive areas for cultural resources. Sites in these areas may contain valuable cultural, paleontological, and environmental data that would provide insight into a time presently little understood by researchers.

Historic site types known to occur within the resource area include, but are not limited to, the remains of homesteads and mining camps, townsites, Chinese borax mines, charcoal kilns and platforms, mining/milling sites, trash dumps, trails, roads, and railroad grades. Historic sites lend themselves very well to public interpretation. Several sites within the resource area could be developed for interpretive purposes including: Rhyolite, Tybo-McIntyre Charcoal kilns, and the

Mountain View Arrastra. Historic mining districts are generally the most sensitive areas for historic sites, but homesteads and small mining camps are found throughout the region.

Known paleontological localities within the resource area contain the remains of invertebrates, vertebrates, and plants. There are numerous sites listed in the Class I Paleontological Inventory that are considered sensitive/significant. Sensitive locations for paleontological sites include sedimentary rocks and Quaternary alluvium.

Examples of sensitive sites/districts within the resource area include:

Rhyolite: The Rhyolite/Bullfrog townsite lies within the Bullfrog Mining District. The townsite was established in 1905, and grew to contain a population of 10,000 by 1907. Abandonment of the town began in 1908 following withdrawal of financial support for the mines. In 1924, only a single prospector inhabited the town. Rhyolite was a substantial town with numerous wood homes, and a number of buildings constructed of reinforced concrete, some as many as three stories high. In 1906, Tom Kelly constructed the now famous Bottle House. This structure was stabilized by Paramount Pictures in 1925 for use in the film "Wanderers in the Wasteland." Although the remains of other bottle houses are present in the resource area, the Rhyolite Bottle House is a premier example of mining town vernacular architecture and the use of bottles as a structural medium. Rhyolite is the most photographed "ghost town" in Nevada, and is visited by hundreds of U.S. and foreign tourists every year. The Friends of Rhyolite organization is actively seeking support for preservation of structures within the townsite.

Trap Springs-Gravel Bar and Stormy-Abel Prehistoric Districts: Both of these districts have tremendous potential for contributing to knowledge of the prehistory of Central Nevada. There are many intact features in the Traps Springs site complex that contain large amounts of heat altered rock and charcoal in association with dense scatters of flaked stone tools and flaking debris. Although the Gravel Bar site has been seriously impacted by various developments, test excavations indicate that the site contains a buried Western Pluvial Lakes Tradition component. More intensive and extensive examination of materials from this component can be expected to contribute significant insight into this early period of occupation. Sites in the Stormy/Abel district are characterized by high densities of debris resulting from the manufacture and maintenance of stone tools. Information from these sites can be expected to contribute to our understanding of stone tool manufacture, and the special techniques that were sometimes used (e.g., heat treatment).

Tybo-McIntyre Charcoal Kilns: The Tybo charcoal kilns were constructed of rock, and are listed on the National Register of Historic Places. The McIntyre Charcoal Kilns were made from brick, and are located several miles to the west of the kilns at Tybo. Historic sites such as these are interesting to many members of the public. The charcoal kilns at these sites are in good condition, are excellent examples of kilns in the area, and therefore, are ideally suited for public interpretation purposes.

Cane Man Hill Petroglyphs: This site consists of a series of petroglyph panels scattered along a volcanic hill. The petroglyph panels at this site contain a high frequency of anthropomorphic/representational elements, an occurrence rarely observed at other rock art sites in the area. Given the high densities of some motifs, this site may be of some significance to local Native Americans.

The following sites within the resource area have been listed on the National Register of Historic Places:

1. The Tybo Charcoal Kilns.

2. William H. Berg House, a privately owned residence located on land managed by the BLM in the historic town of Round Mountain.

3. Goldfield: the historic district and modern townsite are on patented lands, however, some archaeological features associated with the townsite are located on BLM administered lands.

4. Tonopah: the historic district and individual properties shown on the Register are all located on patented land.

5. Berlin Town Site: Recreation and Public Purposes Act (R&PP) to the State of Nevada.

6. Belmont Townsite.

Vandalism and illegal collection/excavation of cultural properties within the resource area are important concerns at this time. Resources in Railroad Valley, Fish Lake Valley, Clayton Valley, and the Silver Peak Range are being significantly impacted by illicit collection and excavation activities. In addition, thousands of artifacts have been removed from sites along Late Pleistocene lake margins. Petroglyphs have been used for target practice and charcoal kilns have been vandalized. The historic townsite of Rhyolite is continually subjected to a tremendous amount of theft and vandalism. Other resources which are known to have been vandalized/looted over the past several years include the Trap Springs/Gravel Bar and Stormy/Abel prehistoric districts, petroglyph sites in Fish Lake and Clayton Valleys, and sites in the Fish Lake Valley Salt Marsh and at Cave Spring.

Natural degradation of cultural properties is a growing concern. Petroglyphs pecked or incised into soft tuff are rapidly being eroded smooth; artifacts are being removed from primary depositional context and features are being destroyed in areas where erosion is ongoing; other sites are being destroyed during flash floods; and neglected historic structures are deteriorating through exposure to wind, water, and sun.

LANDS

The Tonopah Resource Area was established in 1971 for the purpose of managing public lands located in central Nye County within the Battle Mountain District. From 1971 to 1983, the resource area included 3,616,733 acres of public land. The *Tonopah MFP*, approved on July 16, 1981, guides management decisions affecting lands within the east portion of the resource area and would continue to do so until a new RMP is approved.

In 1983, Tonopah Resource Area boundaries were changed to include management of public lands within Esmeralda County and portions of Southern Nye County. This action increased the area included within the resource area by 2,689,230 acres. The *Esmeralda-Southern Nye RMP*, approved on October 10, 1986, forms the basis for management decisions affecting public lands in the west portion of the resource area and would continue to do so until a new RMP is approved.

At present, the resource area includes 6,091,101 acres. Table 3 E depicts land status, both past and present, within the resource area. Over the years, 14,139.86 acres of public land within the resource area have been patented under various authorities. With the passage of the National Forest and Public Lands of Nevada Enhancement Act of 1988, 197,627 acres transferred to the US Forest Service. Over 98 percent of the land within the resource area is in Federal ownership. Most of this land, 78 percent, is public land managed by BLM.

There are 13 rural towns and communities, five small remote settlements, and several isolated ranches within the resource area. Tonopah, the largest town, has a population of only about 4,000. Most of the towns in the resource area started as mining camps around the turn of the century or earlier. Beatty, Belmont, Goldfield, and Lida were patented under the various townsite acts. Silver Peak is located partially on a patented townsite and partially on a State land grant. Tonopah and Manhattan are built on patented mining claims. Hadley was developed on private agricultural land purchased by a mining company to house its employees. Goldpoint, Ione, and Round Mountain are located almost entirely on public land. Carvers and Dyer are primarily agricultural settlements. All of these communities are surrounded by Federal land, and most to some extent occupy public land.

The economies of Tonopah, Beatty, Goldfield, Manhattan, Round Mountain, and Silver Peak are heavily dependent on the mining industry. This dependence traps them in boom and bust cycles reflecting trends in the mineral's market. All of the communities in the resource area would benefit from the stability that economic diversity provides, but few of them have any developable private land and none has the amount of

developable private land needed to attract large industries. Tonopah, Beatty, and Round Mountain are growing, and the demand for land for residential areas as well as for land for recreation and public purposes is growing with them.

TABLE 3 E
LAND STATUS

LAND STATUS	TONOPAH MFP 7/16/81	ESMERALDA-SOUTHERN NYE RMP 10/10/86	TOTAL ACRES	TONOPAH RMP*
BLM	3,616,733 acres	2,689,230 acres	6,305,963 acres	6,091,101 acres
U.S.F.S.	1,203,004 acres	29,450 acres	1,232,454 acres	1,430,081 acres
Private	78,720 acres	68,544 acres	147,264 acres	164,499 acres

* The National Forest and Public Lands of Nevada Enhancement Act of 1988 reduced the acreage administered by BLM by 197,627 acres and concomitantly increased the acreage administered by the Forest Service. Between 7/16/81 and 1/1/91, 3,095 acres were patented in the Tonopah MFP; and between 10/10/86 and 1/1/91, 14,140 acres were patented in the Esmeralda-Southern Nye RMP.

Over the past few years, the demand for additional land at outlying settlements and isolated ranches has been on the increase. Also, a need to sell land for solid waste disposal sites has developed out of the BLM's increased awareness of its liability for promiscuous dumping and its consequent change in policy concerning leasing land for such sites.

During the years following the approvals of the MFP and the RMP, an aggressive land disposal program was undertaken. A total of 17,235 acres of public lands have been patented under various authorities: Color-of-Title, the Desert Land Act, the R&PP Act, the Federal Land Policy and Management Act, and the General Mining Law of 1872, as amended. It has become clear, however, that disposals of more and larger tracts need to be made available in rural Nevada.

Nineteen R&PP Leases have been issued in the resource area for such facilities as schools, parks, rifle and pistol ranges, and landfills. (Land is no longer available under the R&PP Act for landfills.) Land has been patented under this authority for a hospital and a museum storage vault.

Four public airport leases have been issued.

The Tonopah Resource Area has also administered an active desert land entry (DLE) program, although the failure rate in this program has been high. Although entry has been allowed on over 20 DLEs since the MFP was approved, only two have been patented.

The increase in demand for rights-of-way for roads, utility distribution lines, and, to a lesser extent, communication facilities is a clear indication of growth in the area. Over 600 rights-of-way of all types have been granted for the use of lands within the resource area. Most are for roads and small utility lines. There are currently about 80 communication facility rights-of-way located on the 29 developed communication sites within the resource area.

The resource area does not have many major transmission lines crossing it and has no pending applications; but, increasingly, utility companies have been examining possible routes along the two US highways which traverse the resource area. Crude oil from the Railroad Valley oil fields is presently trucked to refineries. Some interest has been expressed in a pipeline either going west to Bakersfield, California, or east to Caliente, Nevada.

Transportation and utility corridors are designated in the *Esmeralda-Southern Nye RMP*. These corridors included 296 miles of existing facilities and identified 30 miles of planning corridors wherein future facilities might be located. Since the RMP was approved, there have been no

applications for commodity transportation or utility transmission rights-of-way within either the designated or the planning corridors. A need has been expressed for a corridor linking the substations at Millers and at Silver Peak and crossing the Silver Peak Range.

The Western Regional Corridor Study identified needed corridors traversing both planning units. Adjacent land management agencies have, for the most part, designated transportation and utility corridors which terminate abruptly in the east portion of the resource area. Most of the work of identifying physical limitations of the land within the resource area has already been done by adjacent land managers and by utility companies seeking possible right-of-way routes. A need has been expressed for a corridor from the Grant Canyon Oil Field to State Route 375.

In 1987, BLM began an intensive inventory of trespasses on the public lands. Since that inventory began, 364 suspected unauthorized uses and occupancies of the public lands within the resource area have been discovered. Of these, 72 have been resolved, leaving 292 still to be resolved as of November 1, 1990. The inventory also disclosed 48 right-of-way trespasses. Of these 29 have been resolved, leaving 19 still to be resolved as of November 1, 1990.

Land classification segregates land from mineral entry and limits the uses to which the land may be put. Public lands may be classified under various authorities. Since the enactment of the Federal Land Policy and Management Act (FLPMA) in 1976, classifications within the resource area have been made under the authority of the R&PP Act and under the agricultural land laws.

Lands may also be withdrawn from the operation of some or all of the public land laws. Most often lands are withdrawn from mineral entry. The provisions for authorizing most withdrawals are found in Section 204 of FLPMA. Withdrawn lands may be placed under the jurisdiction of another Federal bureau, agency, or department. Appendix 11 summarizes the withdrawals and segregations of record within the resource area. These withdrawals are also depicted on Maps 25 and 26.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

There are no areas of critical environmental concern (ACEC) designated in the resource area.

Through the public participation process, 33 areas have been nominated for consideration for ACEC designation. Each nomination was reviewed against the relevance and importance criteria describe in *BLM Manual 1613*. An area meets the relevance criteria if it contains one or more of the following: 1) a significant historic, cultural, or scenic value; 2) a fish and wildlife resource; 3) a natural process or system; 4) natural hazards. An area meets the importance criteria if it contains one or more of the following: 1) has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource; 2) has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change; 3) has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA; 4) has qualities which warrant highlighting to satisfy public or management concerns about safety and public welfare; and 5) poses a significant threat to human life and safety or to property.

Of the 33 areas nominated 10 were found to meet the criteria for relevance and importance. The following descriptions are for the 10 nominations which met the criteria for relevance and importance (see Maps 41 and 42).

DESCRIPTION OF 10 AREAS NOMINATED FOR ACEC CONSIDERATION

1. AMARGOSA-OASIS includes 13 locations of approximately 40 acres each around Beatty.

   RATIONALE FOR NOMINATION: Rare vertebrates, plants and riparian communities in need of protection.

   RELEVANCE: Represents a natural process.

   IMPORTANCE: Provides habitat for the following C2 species: Amargosa toad (*Bufo nelsoni*) and the Oasis Valley speckled dace

(*Rhinichthys osculus micrococcus*). The area is also significant because of unique occurrences of vertebrates. Also, riparian areas in desert environments are of importance. Indian Springs provides water for Beatty. The Amargosa Narrows has a highway, gravel pit, pipeline to sewage lagoons, rapid infiltration ponds and other authorized uses.

2. CANE MAN HILL Petroglyph District is a series of petroglyphs located on a hill on the west side of Clayton Valley at the southern end of the Silver Peak Range. The area encompasses 680 acres.

   RATIONALE: The site is in need of protection.

   RELEVANCE: Cultural resource values.

   IMPORTANCE: The district consists of a series of petroglyphs clustered around an area dubbed "Cane Man Hill" by the archaeologist who located the petroglyphs.

   The petroglyphs contain an element that is unusual for this area and appears to be common to the southwestern U.S. The petroglyphs are in danger from vandals. It could also be adversely affected by some project related activities such as mining.

3. LONE MOUNTAIN is west of Tonopah. Approximately 14,400 acres have been nominated for consideration.

   RATIONALE: Rare and endemic plant species are in need of special management and protection.

   RELEVANCE: Represents a natural process.

   IMPORTANCE: Provides habitat for *Haplopappus graniticus*, a C2 species. The area also contains natural plant communities in near pristine condition containing endemic plant species and habitat representative of Nevada's species diversity. There are Joshua trees growing at a relatively high elevation at the north end of their range in association with pinyon trees. The area contains a native bighorn sheep population.

4. LUNAR CRATER is east of Warm Springs and 24,980 acres have been nominated for consideration. An additional 14,700 acres was nominated as the Big Sand Springs Lava Flow. These areas have been combined into one potential ACEC.

   RATIONALE: Outstanding geologic phenomenon.

   RELEVANCE: Rare geologic occurrence representing a natural process.

   IMPORTANCE: Lunar Crater is listed on the National Natural Landmark Register. The area is on a proposed Scenic Byway. The area encompasses a volcanic field including Lunar Crater, Easy Chair Crater, various cinder cones, and Black Rock Lava Flow, a flow which comes out of a collapsed side of a volcanic crater.

5. RAILROAD VALLEY Wildlife Management Area is located in the northeast portion of the resource area. The nomination includes the critical habitat for Railroad Valley Spring fish and riparian habitats. Approximately 15,470 acres has been nominated.

   RATIONALE: The Railroad Valley area needs special management to protect wildlife resource values.

   RELEVANCE: Contains a wildlife resource.

   IMPORTANCE: Provides habitat for the Railroad Valley springfish (*Crenichthys nevadae*), a federally threatened species. Threatened species are more than locally significant. The Railroad Valley Wildlife Management Area provides riparian habitat for migrating waterfowl and species diversity. The Railroad Valley Wildlife Management Area was originally recognized in a 1934 Executive Order and is under a federal protective withdrawal. The oil and gas potential is high.

6. RHYOLITE is located at the northern end of the Amargosa Desert, west of the town of

Beatty. The Bullfrog Hills border the townsite to the north, east, and west. The townsite encompasses 200 acres.

RATIONALE FOR NOMINATION: This area needs special management due to the complexity of the problems/concerns for this area. The area contains some private residences interspersed with public land. The public land portion of the townsite is covered with unpatented mining claims. The mining claimant has a legal right to explore, develop and mine those claims. A large open pit mine is situated just on the other side of a mountain from the townsite. The ruins are in an advanced state of decay. This office has received many letters from interested members of the public expressing their concern over the preservation of this site.

RELEVANCE: Historical interest.

IMPORTANCE: The ruins of the 1905 townsite bring in tourists from all over the world. The Rhyolite portion of the townsite contained structures of rock and/or reinforced concrete, some as much as three stories tall. It is the most photographed "ghost town" in Nevada. (From personal communication, Nevada State Historic Preservation Officer (SHPO)). A house constructed of approximately 50,000 bottles is also located in the townsite.

7. STORMY-ABEL Prehistoric District is comprised of a number of prehistoric sites centered around Storm Spring, Abel Spring, and Coyote Spring on the west side of Northern Railroad Valley. The district encompasses 12,320 acres.

RATIONALE: The sites within this area are in need of protection.

RELEVANCE: Cultural resource values.

IMPORTANCE: There are numerous sites within the district ranging in type from small, single task sites in the dune areas to a large primary workshop. Diagnostic artifacts point to occupation of the area throughout the prehistoric period. Diagnostic artifacts include both Numic and Fremont pottery, projectile points and grindstone.

This district has been determined eligible for the National Register. Significant districts of this magnitude with enough integrity to answer research questions concerning the Great Basin are relatively rare. The district is currently being degraded by livestock use, water developments, and illegal collection.

8. TIMBER MOUNTAIN CALDERA National Natural Landmark is in the Nellis Air Force Range but portions (7,040 acres) of the National Landmark are in the resource area.

RATIONALE: Area has an existing special designation.

RELEVANCE: Natural process, an outstanding example of a caldera.

IMPORTANCE: The National Natural Landmark Register status signifies the area as having national significance. The major portion of the area was given ACEC status in the *Nellis Air Force Range Resource Plan*. The portion in the resource area contains mining claims.

9. TRAP SPRINGS-GRAVEL BAR Prehistoric District contains prehistoric sites located on sand dunes, alluvial plain and a lake shore feature in Northern Railroad Valley. The district encompasses 8,480 acres.

RATIONALE: The data contained in the sites needs to be protected until such time as professionals can study the area and collect the information.

RELEVANCE: Cultural resource values.

IMPORTANCE: The Gravel Bar Site has a continuous lithic scatter along its length which ranges in age from approximately 9000 years ago to historic times. In addition, there are at least two buried components of this site: a Parman assemblage at Flowing Well (8000 to 9000 years old) and a Rosegate assemblage (800 to 1600 years old). Within the same

general area as the Gravel Bar, lithic concentrations have been noted eroding out of sand dunes near Trap Spring and also on the alluvial plain. These concentrations include fire cracked rock, grindstone, both Numic and Fremont pottery, tools, etc. Great Basin Stemmed, Elko, Rosegate, and Desert Side Notched projectile points have been recorded in this area.

Sites such as the Gravel Bar are rare for the Great Basin. The wealth of data potential for these areas is enormous. "The presence of Western Pluvial Lakes Tradition (WPLT) (Parman) artifacts on the bar in a buried context has great potential to inform regarding the culture and paleoenvironments of the poorly understood Pleistocene-Holocene transition." (letter to the State Director from IMR dated 9/27/90) The sites are currently being degraded by oil and gas activities, roads, and illegal collection.

10. TYBO-MCINTYRE CHARCOAL KILNS are located in the Hot Creek Range, encompassing 80 acres.

RATIONALE: The charcoal kilns are in need of protection.

RELEVANCE: A significant historical resource.

IMPORTANCE: The McIntyre Charcoal kilns consist of three sets, a northern, middle, and southern set and are constructed of brick. The Tybo Charcoal Kilns are constructed of stone.

The Tybo Charcoal Kilns are listed on the National Register of Historic Places. The charcoal kilns are very important to the history of mining/milling in the west. People throughout the United States are interested in these kilns. The kilns are being vandalized. The brick off the kilns has been taken to make patios, etc. All kilns may be adversely affected by some types of project activities, such as mining.

RECREATION

The resource area offers a wide variety of recreation opportunities such as hunting, camping, off-highway vehicle (OHV) use, hiking, photography, historical sightseeing, and OHV competitive events among others. This wide range of opportunities is possible because virtually all of the public lands are accessible and offer a variety of settings suitable for different recreation activities. There are no BLM developed recreation facilities in the resource area. Primarily dispersed recreation has dominated the area with few areas receiving regular visitor use.

Recreation Opportunity Spectrum: The BLM has adopted a system called the Recreation Opportunity Spectrum (see Appendix 12 for a description of the five settings). This system provides a method of identifying recreation opportunities available on the public lands and a means to plan for the long-term maintenance of the required settings.

For this RMP, the different settings available on public lands in the resource area were identified. The settings were formulated using factors such as remoteness, size, amount of landscape change and development, the evidence of other people, and the degree of management control. There are 90,370 acres with a primitive setting; 339,120 acres with a semi-primitive non-motorized setting; 465,725 acres with a semi-primitive motorized setting;5,035,686 acres with a roaded natural setting; and 160,200 acres with a rural setting (see Maps 43 and 44).

Special Recreation Management Areas: There are no Special Recreation Management Areas (SRMAs) within the resource area. Recreation management has primarily consisted of maintaining the minimum management and visitor services necessary within the Tonopah Extensive Recreation Management Area (ERMA).

Although dispersed recreation is the rule in central Nevada, several undeveloped areas have become commonly used for overnight camping, fishing, day hiking, and picnicking.

TABLE 3 F
DISPERSED RECREATION ACTIVITIES OCCURRING IN THE
ESMERALDA AND NYE COUNTIES [1]

ACTIVITY	PERCENT POPULATION PARTICIPATING	PARTICIPATION PER PERSON[2] (DAYS PER PERSON PER YEAR)	TOTAL PARTICIPATION DAYS[3]
Rock Hounding	22.6	2	5,001
Horseback riding	18.4	2	4,027
Off-Highway Vehicles	12.0	19	25,228
Photography	10.6	8	9,383
Hunting	10.4	19	21,864
Primitive Camping	9.7	2	1,073
Sightseeing[4]	9.2	14	14,252
Exploring	8.4	14	13,012
Fishing	5.7	4	2,523
Shooting	4.8	2	1,062
Hiking-Back Packing	3.4	4	1,505
Boating	3.3	1	365
			99,340

1 Information from Nevada State Senate Bill 40, 1983
2 Local survey
3 These figures are based on the following calculation: (participation per person) x (population) x (Percent population participating). The population is based on the 1990 census: Northern Nye Co. 9,722 + Esmeralda Co. 1,343 = 11,065.
4 Does not include sightseeing by vehicles transiting the resource area on major U. S. highways or State routes.

Off-Highway Vehicles: The primary recreation activity is OHV use. This includes a wide range of vehicles from standard highway vehicles to motorcycles, and four-wheel drive trucks, to dune buggies, and sand racers. Currently, most of the resource area is open to OHV travel with only limited restrictions.

There are several annual competitive OHV events within the resource area. Indications are that the number would increase over the next several years due to continuing restrictions on such events in areas with desert tortoise and other resources requiring protection. Conflicts exist over event routes, reclamation, contact with private property, and management of associated resources and resource users. The existence of these conflicts necessitates race course requirements and standards.

Extensive Recreation: The resource area has a broad array of dispersed recreation activities (see Table 3 F). The lack of recreation development in central Nevada can be most closely linked to the lack of a sizeable population source within driving distance to take advantage of day-length activities. Also, related to populations, is the lack of information available to the general public concerning recreation in the desert. In general, central Nevada is viewed as a place to be driven through, not to, as there are no destination points favoring popular interest. Destination points adjacent to the resource area (Death Valley National Monument, The White Mountains) and those found nearby (Las Vegas, Great Basin National Park, Reno) provide considerable traffic flow through the area. The development of several "day trip" recreation sites coupled with public information concerning their existence, could result in a sizable increase in use of public lands within the resource area.

The greatest strength of the resource areas recreation program is its dispersed nature. The area is open to the public to pursue whatever activities the resources would permit with a lack of regulative restrictions, close confinement to other users, or limitations on movement. As these qualities are becoming more unique nation-wide, their retention should be emphasized in Tonopah

TABLE 3 G
ROS CATEGORIES IN WILDERNESS STUDY AREAS

Semi-Primitive Motorized	Semi-Primitive Non-Motorized	Primitive	Total
268,385 acres	245,385 acres	90,370 acres	604,535 acres

Resource Area's recreation development. Numerous small areas could be developed which would provide impetus to stop and explore, but would not concentrate use, thereby retaining the better qualities of recreation which Tonopah Resource Area can provide.

The road network of the resource area is extensive. However, most of the roads are unpaved, minimally maintained, and are susceptible to climate related damage making them impassable. To reach many of the undeveloped recreation areas currently existing in the resource area, one must drive a high-clearance vehicle.

Most of the visitors to the ERMA are probably local residents; however, more nonresidents would take advantage of the wildlife observation opportunities once this aspect is known. The following unique areas in the Tonopah ERMA are discussed in terms of their recreational opportunity and possible designation as SRMAs.

There are several areas where the presence of high quality natural resources and current or potential demand warrants intensive management practices to protect the areas for their scientific, educational, and/or recreational values.

1. Railroad Valley

   Railroad Valley is located in central Nevada approximately 70 miles south of Ely and 100 miles east of Tonopah along U.S. Highway 6. Formerly a U.S. Fish and Wildlife Service Refuge, it is one of the BLM's few sizeable riparian areas.

   A 1968 Public Land Order reduced the size of the area to 14,720 acres, which includes most of the riparian habitat in Railroad Valley. This area is probably the best area in central Nevada for observing and photographing waterbirds, particularly during migrations. The area was developed by constructing dikes and spillways to create pond areas and taking advantage of two artesian wells. The area is an excellent waterfowl area which is not achieving its potential because of the deteriorated condition of the ponds. The area was formerly a largemouth bass and bluegill fishery. Ditch improvement would be necessary to stock fish in this area again. Both waterfowl hunting and bass fishing are uncommon activities in central Nevada. Railroad Valley is almost 100 miles closer for Tonopah residents for both these activities than to a comparable area. The area is managed according to an agreement with the Nevada Department of Wildlife.

2. Lunar Crater

   Located along U.S. Highway 6 approximately 80 miles east of Tonopah, the area encompasses a volcanic field of 39,680 acres. There are 2,560 acres already recognized as a National Natural Landmark. Some of the more important features include: Lunar Crater and Easy Chair Crater, both maar craters, and Black Rock Lava Flow, an ancient flow coming out of the collapsed side of a volcanic crater. Nearby is The Wall, a 20 mile long palisade area with a spectacular vista. In a report prepared for the National Aeronautics and Space Administration, Lunar Crater was noted as being very similar to the craters on the moon. While a very unique area, it has received little use by the public. A few hunters camp in the area and there are occasional sightseers.

3. Sand Dunes Areas

The resource area has two sand dune areas that are known to be used by dune buggy enthusiasts. These are the Crescent Dunes about 15 miles northwest of Tonopah, and Clayton Valley Dunes, about 10 miles southeast of Silver Peak. Both are similar areas, having several "peaks" which are several hundred feet in height and having one very steep side. Crescent Dunes is easily accessible and well known to the public.

WILDERNESS

All lands under wilderness review (WSAs) must be managed under the Interim Management Policy (IMP) guidelines until either designated as wilderness or released for multiple-use management by Congress (see Maps 41 and 42). Once final designation or release of the WSAs has been completed, those areas designated for wilderness would be managed under the appropriate laws, regulations, and policies while those lands released for multiple use management would be managed in conjunction with all pertinent laws, regulations, and policies for multiple-use public lands.

Many of the WSAs were initially selected for study based on their roadless, primitive character. In reintroducing WSA lands to multiple-use management, the decision on whether to retain the wilderness qualities would determine management direction. A Recreation Opportunities Survey (ROS) was prepared for the resource area and is used to evaluate motorized and non-motorized potentials within the WSAs (Table 3 G). ROS categories are described in Appendix 12 and shown on Maps 43 and 44.

FLUID MINERALS

Public lands are available for oil and gas leasing or geothermal leasing after they have been evaluated through BLM's multiple use planning process. In areas where development of resources would conflict with protection or management of other land uses, mitigating measures are developed.

Existing fluid mineral leasing categories, based on previous planning, are shown on Table 3 H.

Oil and Gas

As of December, 1990, 185 wells have been drilled in an area covering approximately 450 square miles. Since 1977, 126 wells have beendrilled, indicating that industry interest in Railroad Valley continues to expand. Although exploratory wells have been drilled in Fish Lake Valley, Big Smoky Valley, Stone Cabin Valley, Hot Creek Valley, and Railroad Valley, to date oil and gas development in the resource area is limited to Railroad Valley. This Valley is considered to be a wildcat area and much of the drilling which has occurred is associated with exploration units. Forty-four exploration units, averaging 14,000 acres in size, have been approved for operations in Railroad Valley. As many as 14 units have been approved in one year.

The nature of the resource in Railroad Valley has led exploration drilling to follow a very dispersed pattern. Of the 160 wells drilled, 96 have been drilled outside of field areas. The spacing of these wells ranges from one per square mile to one per thirty square miles. The extremely complex geologic structure of the area has limited the success rate of wells to approximately 28 percent. Even within the defined fields the success rate is only 60 percent.

Seven producing fields have been discovered in Railroad Valley. Eagle Springs began production in 1954 when the first producing oil well in the State, Shell Eagle Springs Unit No. 1-35, was completed. The second discovery did not occur until 1976 when Northwest Exploration Trap Springs No. 1 was completed. Since the Trap Springs discovery, a new field has been discovered every two to three years. Production from the six active fields currently producing oil in Railroad Valley exceeds three million barrels per year. The Kate Springs Field is the only field producing natural gas. The Grant Canyon Field, which went into production in 1983, contributes approximately 85 percent of the total production. This field contains one well, Grant Canyon #4, which was the largest producing well in the United States. Estimates of recoverable reserves from each producing oil field vary from four to thirteen million barrels. Over 25 years, production from Eagle Springs amounts to 95 percent of estimated reserves. The Grant Canyon and Trap Spring Fields have produced approximately 55 percent to

TABLE 3 H
AVAILABILITY OF LANDS FOR MINERAL LEASING
RELATIVE TO RESOURCE POTENTIAL[1]

MANAGEMENT CATEGORIES	LOW POTENTIAL ACRES	MODERATE POTENTIAL ACRES	HIGH POTENTIAL ACRES	UNKNOWN POTENTIAL ACRES	TOTAL ACRES
OPEN SUBJECT TO STANDARD TERMS AND CONDITIONS	360, 640	1,215,420	520,660	3,899,785	5,996,457
OPEN WITH MAJOR RESTRICTIONS (NO SURFACE OCCUPANCY)	0	0	3,960	0	3,960
OPEN WITH MINOR RESTRICTIONS (SEASONAL RESTRICTIONS)	12,760	16,000	0	0	28,760
CLOSED TO LEASING (DISCRETIONARY)	7,400	46,980	1,280	3,000	58,660
CLOSED TO LEASING (NONDISCRETIONARY) [1]		2,560	0	704	3,264

[1] Assumes that lands in Wilderness Study Area status would be returned to multiple use.

65 percent of estimated reserves. Production from both the Eagle Springs and Trap Spring fields began to decline in 1978. The fields are located as close as one mile apart and as far away as 12 miles from each other. The number of production wells per field ranges from one to thirty-nine. The wells have been drilled on 40 or 160-acre spacing, depending on reservoir depth. Currently forty-eight wells in Railroad Valley are producing oil, 15 are shut in, eight are temporarily abandoned, and six are water disposal wells. Production varies from 10 to 4,000 barrels of oil per day per well. Cumulative production from all these fields through June of 1990 is 26,541,465 barrels of oil.

Much of the crude oil produced in Railroad Valley is processed at the Railroad Valley refinery. Products include diesel, kerosene, naphtha and asphaltic bases. Crude oil residue or residual from the refinery is currently burned at the Sierra Pacific Power Plant on Interstate 80 outside of Reno, at Tracy, NV. Crude oil is also trucked to Salt Lake City, Utah, and to Bakersfield, California. Petro Source does not purchase all of the oil produced in the Valley. In early 1990 the company purchased the Tonopah Refinery. This facility is used for oil storage and refining for the spot market. The changing oil distribution system in Salt Lake City and other western locations strongly influences the economics of produced oil. (1990 prices to ship via truck were $4/barrel to Salt Lake City and $8 per barrel to Bakersfield, CA.) The product is shipped out of state for distribution, as well as being utilized in state. The natural gas produced in the Kate Springs Field is currently being flared.

TABLE 3 I
OIL AND GAS POTENTIAL (Acres)

POTENTIAL	ACREAGE
High	525,900
Moderate	1,278,400
Low	380,800
None	3,906,001

TABLE 3 J
GEOTHERMAL RESOURCES POTENTIAL

Potential	Acreage
High	3,365
Moderate	279,460
Low	338,250
Unknown	5,470,026

Current oil and gas leases held in Nye County totals 1,052 leases covering 2,165,964 acres. No leases were held in Esmeralda County as of December, 1990.

Calculation of oil and gas potential is shown on Maps 53 and 54, and summarized on Table 3 I.

Geothermal Resources

The development of geothermal resources is governed by the Geothermal Steam Act of 1970, as amended. The resources that can be developed include: geothermal steam, hot water, hot brine and heat found in geothermal formations. Lands that have known value are referred to as Known Geothermal Resource Areas (KGRAs). These areas must be leased competitively. All other lands can be offered non-competitively. Geothermal resource potentials are shown on Maps 53 and 54 and summarized on Table 3 J. There are 48 locations of hot or warm water in Nye County, and 17 locations in the Esmeralda County. Hot water is defined for these purposes as water greater than 50°C, and warm waters from 20°C to 50°C.

Within the resource area there are currently only two KGRAs identified. These are located at Round Mountain and in Fish Lake Valley. Development of geothermal resources since 1981 has centered in these areas.

The Round Mountain KGRA has been developed by Round Mountain Gold Corporation. The geothermal energy is used to preheat leach solutions in the winter for the Round Mountain Gold Mine. The operation utilizes three production wells, two injection wells and a heat exchanger. The preheat operation normally runs from October to April.

The second KGRA is located at the north end of Fish Lake Valley. Extensive testing between 1980 and 1985 was undertaken to determine the temperature gradients and potential production zones. This work culminated in two production wells being drilled and flow tested. BLM permitted a 5-megawatt power plant in 1987. The sale of 16 megawatts of power has been contracted to Southern California Edison. The first sale of power is scheduled for 1995. The potential resource and market exists for two additional 15 to 20 megawatt plants to be on line or under construction by 2000.

Darroughs Hot Springs in Smoky Valley has been drilled and flow tested, but no power plant has ever been proposed. The area is private land and contains a small bath house development.

In 1986 and 1987 a private company attempted to develop a vegetable drying plant in southern Railroad Valley. This project was unsuccessful, however since the water temperatures were marginal for exploitation.

LOCATABLE MINERALS

The locatable minerals industry has historically been, and continues to be, a major industry in the resource area. Minerals produced include: copper, molybdenum, gold, silver, lithium, fluorspar, bentonite clay, diatomaceous earth, mercury, and turquoise. In 1990 the total employment in the resource area from mining was 1,879 people (State Mine Inspector figures). This total does not include smaller operations which employ only one or two people. The gross mineral value produced in the resource area in Fiscal Year 1990 exceeded 350 million dollars.

Locatable mineral potential is depicted on Maps 61 and 62 and the acreage is shown on Table 3 K.

The sources of this information include professional geologic knowledge, past production records, professional contacts, geologic reports, and BLM exploration records. Mineral exploration associated with the mining industry increased steadily from 1981 - 1990. In spite of a minor drop in plans and notices received in 1991, Tonopah still ranks as one of the most active resource areas for mineral exploration and development in Nevada. This activity ranges from the large exploration company doing a multiple drill hole program to the small operator and prospector completing yearly assessment work. It is anticipated the trend toward heavy mineral activity will continue. There are 65 mining districts with a history of production in the resource area. There are 15 large mines currently producing in the resource area.

TABLE 3 K
LOCATABLE MINERAL POTENTIAL

Potential	Acreage
High	726,100
Moderate	2,050,000
Low	3,315,001

MINERAL MATERIALS

A variety of mineral materials are present in the resource area including sand and gravel, cinders, basalt, and decorative rock. The greatest demand is for sand and gravel which are used primarily by Nevada Department of Transportation and county road departments for the construction and maintenance of roads. An increasing demand for decorative stone also is occurring. The historic demand for sand and gravel has averaged 17 contracts and 139,546 cubic yards over the last 10 years. Current demand for sand and gravel is being easily met. Although future demand is unknown, there is a high probability that the demand can be met since over half of the resource area has potential for production (3,629,800 acres).

Current demand for cinders, basalt and decorative landscaping rock is being met. However, these materials are not so prevalent in the resource area as are sand and gravel. A demand for large (100,000 plus tons) sales would quickly deplete current collection areas and quarries. Current collection areas and quarries would be quickly depleted.

NON-ENERGY LEASABLE MINERALS

Non-energy leasable minerals in the resource area include phosphate, sodium and potassium. Such leases exist in Clayton Valley and in Railroad Valley. Although leases for non-energy minerals are active in Clayton Valley and Railroad Valley, current sodium and potassium salt production is limited to Clayton Valley. These deposits are located in the playas. There are 864,400 acres with potential for sodium and potassium values.

The level of exploration for non-energy leasable minerals has been low. Only one prospecting permit has been issued in the last five years. However, with over 800,000 acres of the resource area having potential for production of sodium and potassium, future development is likely.

FIRE MANAGEMENT

The incidence of wildfires within the resource area is generally low. A majority of those fires reported in the resource area over the last 10 years have been in Size Class A (0.25 acres or less). During the last 20 years, there has not been a fire larger than 1,200 acres.

Fire Management Policy and Procedures within the resource area are guided by the Battle Mountain District Fire Management Activity Plan (FMAP).

There is little potential for fire to enhance or inhibit the ability to achieve resource objectives. The only potential to enhance the ability to achieve resource objectives would be in habitat management (principally conversion from piñon-juniper woodlands), and watershed improvements (principally conversion from big sage communities). However, these opportunities are limited due to low fuel quantity and the noncontinuous nature of the fuels.

Existing ecological status may be somewhat responsible for the lack of fires in the resource area. However, the site potential, as described by the Soil Conservation Service Range Site Guides, for much of the area do not show fuel loading and continuity to allow widespread use of fire.

The Battle Mountain District FMAP separated the district into two fire zones (see Maps 63 and 64). These zones include areas with similar fire behavior based upon vegetative and topographical features. The zones are briefly described below.

1. Fire Management Zone 1.

   Fuel types are annual and perennial grasses, with widely scattered shrubs. This zone is generally situated in the valley floors up to the mid slopes within the resource area.

2. Fire Management Zone 2.

   This fuel type is generally big sage and grasses at its lower extremities, changing to piñon-juniper at the higher elevations. This zone is generally situated at mid-slope up the mountain peaks.

   Fires in both zones are generally small and of low intensity. The size is usually limited by the lack of continuity in the fuels. This lack of fuels to carry a fire also severely limits the use of prescribed fires.

SOCIAL AND ECONOMIC CONDITIONS

Because of the manner in which data is organized and made available, the affected environment, for purposes of social and economic analysis, must necessarily be defined to include all of Nye and Esmeralda Counties. Analysis of potential effects must also be inferred from county-wide data.

Population and Area

Table 3 L displays 1980 and 1990 decennial population benchmarks and population forecasts for the year 1995 for the two counties and the State. Both counties remain rural and sparsely populated; yet, in relative terms, have experienced extraordinary growth. Nye leads the state, with a population increase of 96.5 percent, and Esmeralda ranks third, with a 73.0 percent population growth between 1980 and 1990. Nye is the largest county in the state, with a total area of 18,147.2 square miles. Population density for Nye County is about 1.0 persons per square mile. About half of the population of Nye resides in the southern portion of the county, outside of the resource area.

Population density in Esmeralda County, encompassing a land area of 3,588.7 square miles, is estimated at 0.4 persons per square mile.

Income and Employment

Tables 3 M and 3 N show earnings and employment, by major industries, in 1989 for both counties. The service industries are the single most important employers and income producers for Nye County, providing 58.3 percent of county employment and 62.2 percent of industrial income. Mining provides the bulk of the balance of employment and income, with 1,909 jobs (14.7 percent) generating $76.8 million in income (18.9 percent of total county income). The predominance of service industries is explained primarily by civilian employment for private firms providing contractual services to the Nevada Test Site.All other industrial activity in Nye County

accounts for the remaining 27 percent of employment and 18.9 percent of income generated by industry. Agriculture provides 195 jobs and $1.8 million in income.

For Esmeralda County, a comparatively much smaller economy, the minerals industry predominates, providing 33.6 percent of employment and producing 43.3 percent of industrial income. Agriculture is the second most important generator of income for Esmeralda County, at $2.6 million, or 19.1 percent. Agriculture, is only 5th ranked in employment, however, at 12.2 percent. Government is the county's second most important employer, providing 107 jobs, or 20.8 percent of county employment. But government generated income represents only 12.8 percent of the county total. Mining, agriculture, and government, together with construction, account for almost 92 percent of earnings and about 82 percent of employment in Esmeralda County.

TABLE 3 L
AFFECTED AREA POPULATION AND PROJECTIONS

LOCATION	1980	1990	PERCENT CHANGE 1980-1990	1995 PRELIMINARY FORECAST
Esmeralda County	777	1,344	73.0	1,370
Nye County	9,048	17,781	96.5	20,400
State of Nevada	800,508	1,201,833	50.1	1,581,540

(Source: 1980 and 1990 U.S. Department of Commerce, Bureau of the Census; 1995 Preliminary Forecast, Department of Administration, State of Nevada.)

TABLE 3 M
ESMERALDA AND NYE COUNTIES, 1989; EARNINGS BY MAJOR INDUSTRIES (1,000)

INDUSTRY	ESMERALDA	PERCENT	NYE	PERCENT
Agriculture	2,645	19.1	1,837	0.5
Mining	5,993	43.3	76,843	18.9
Construction	2,319	16.7	19,624	4.8
Manufacturing	0	0	1,739	0.4
Wholesale Trade	[1]	[1]	1,120	0.3
Retail Trade	549	4.0	10,491	2.6
Services	314	2.3	252,395	62.2
Government	1,768	12.8	26,215	6.5
Other	255	1.8	15,522	3.8
Total	**13,843**	**100.0**	**405,786**	**100.0**

(Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, April 1991.) Earnings include wages and salaries, other labor income, and proprietor income. Earnings represent the principal component of total income which is further comprised of dividends, interest, rent, and transfer payments, less personal contributions for social insurance.

[1] Not shown to avoid disclosure of confidential information. Figures are included in "other."

TABLE 3 N
ESMERALDA AND NYE COUNTIES, 1989; EMPLOYMENT BY MAJOR INDUSTRIES

INDUSTRY	ESMERALDA	PERCENT	NYE	PERCENT
Agriculture	63	12.2	195	1.5
Mining	173	33.6	1,909	14.7
Construction	78	15.2	581	4.4
Manufacturing	0	0	130	1.0
Wholesale Trade	([1])	([1])	37	0.3
Retail Trade	71	13.8	805	6.2
Services	11	2.1	7,571	58.3
Government	107	20.8	1,111	8.6
Other	12	2.3	653	5.0
Total	**515**	**100.0**	**12,992**	**100.0**

(Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, April 1991.)

([1]) Not shown to avoid disclosure of confidential information. Figures are included in "other."

Unemployment rates reported by county, for May, 1991, were 5.1 percent for Esmeralda, and 5.5 percent for Nye. The Nevada State average was 5.8 percent at that time. Rates reported for May, 1992 show unemployment increasing significantly in Esmeralda County up to 11.7 percent, while Nye declined to 5.2 percent, and the Nevada State average remained approximately stable at 5.7 percent.

The significant increase in the unemployment rate for Esmeralda County underscores the importance of mining in the county economy. A general cessation of gold mining and production in the county has been precipitated by the continuing downward trend in the international price of gold.

Annual per capita income figures for 1989 show Esmeralda ($22,419) to be the second highest in the state; reflective of mineral industry wage levels. Nye County, with a per capita personal income estimated at $15,967 is below the average of $18,989 for the State's 17 counties.

Social Setting, Attitudes, and Values

An analysis of social attitudes, expectations, and lifestyles was conducted for the *Final Environmental Statement, Proposed Public Land Withdrawal, Nellis Air Force Bombing Range* (U.S. DOI, BLM/USAF, 1981). Additional Social-Economic Profiles have been prepared by BLM and from these sources it may be concluded that the majority of residents are pleased with their communities and lifestyles. The more rural residents are, however, less tolerant of outside influence in their lives.

Residents strongly value quality educational opportunities for their children, family life, friendship, personal honesty, and trust. Personal independence, responsibility, and self-reliance are particularly prized virtues. Economic development, industrial growth, and community expansion are favored, while personal status and environmental concerns receive less emphasis.

Positive community attributes include such factors as (1) a good place to raise a family, (2) recreational opportunities, (3) and the quality of the physical environment. The lack of adequate hospital and medical care are the principal concerns of the rural area inhabitants.

The Federal Government represents a significant presence in these two counties, as illustrated by land ownership data. Almost 99 percent of the land area in Esmeralda County (approximately 2,257,689 acres) are under Federal ownership. Federal land ownership in Nye amounts to 8,560,733 acres, or almost 74 percent of the land within that county.

The Nellis Air Force Base and Range and the Nevada Test Site represent the most visible presence of the Federal Government. Local resident interest and concern is also directed toward Federal management of the lands for mining, livestock grazing, wildlife and wild horse management, wilderness, land tenure and utility corridors.

Income and employment opportunities afforded by the military presence are generally perceived as favorable, even necessary. Concern about aircraft noise, sonic booms, range contamination from unexploded ordnance, radioactivity, seismicity, and potential range fires has been expressed by residents of the study area. A full discussion of these concerns may be found in the *Final Environmental Statement for the Proposed Public Land Withdrawal, Nellis Air Force Bombing Range, Nye, Clark and Lincoln Counties, Nevada* (U.S. DOI, BLM/USAF, 1981).

Residents of both counties express strong interest in mining, livestock grazing, wild horse management and wilderness issues. Wildlife and land tenure, particularly lands available for community expansion and utility corridors have proven, in the past, to generate concern in both urban and rural areas throughout the counties.

Affected Sectors

Livestock-oriented agriculture and mining are the major basic industries that could be potentially affected by management proposals. Future livestock grazing and mining activities could be affected by constraints and prescriptions to protect wildlife; land disposal proposals; and the designation of utility corridors.

Agriculture

Agricultural production in the RMP area consists of cattle and hay. Cash receipts from marketings in 1989 totaled $4.8 million in Esmeralda County, with $2.0 million from livestock and livestock products, and $2.8 million from crops. Total farm labor and proprietors income, for Esmeralda County, is estimated at $2.6 million.

Nye County cash receipts totaled $5.0 million, in 1989, with $3.0 million from livestock and $2.0 million from crops. Farm labor and proprietor's income totaled approximately $1.8 million.

Agriculture accounts for 19.1 percent of total labor and proprietors income in Esmeralda County, and provides 12.2 percent of total employment. The majority of agricultural production occurs in Fish Lake Valley.

While of lesser significance to the Nye County economy, providing only 0.5 percent of total income and only 1.5 percent of total employment, agriculture in Nye County retains its importance in public perceptions as a principal, stabilizing, basic industry.

Little indirect income is generated by agricultural purchases within either of the counties. Most farm implements and equipment are purchased outside of the counties, primarily in Bishop, California.

Livestock have been using an average of 167,102 AUMs of public land forage in the resource area, with 29 active permittees on 34 grazing allotments. Net ranch income is estimated at $5.25 per AUM.

Historically, the economic benefits derived by area ranchers from the use of public range have exceeded the fees they are charged. The existence of this imbalance, or "consumer surplus," has meant that ranchers are willing to pay extra for the opportunity to use public lands, thereby causing the grazing permit to acquire a market value (Vale, 1979; Neilson and Workman, 1971). The permits can be bought or sold in the market place, or used as collateral for loans (Corbett, 1978). Although not officially recognized as real property, BLM permits have nonetheless become an integral element in the capital and credit structure of area ranchers. Currently, the market value of a Federal AUM is estimated at $50 in the region. At an average market value of $50 per AUM, BLM grazing privileges contribute $8.4 million to the wealth of area ranchers.

Mining

Providing 33.6 percent of total employment and producing 43.3 percent of total income in the county, mining looms large in significance in the economy of Esmeralda County. In boom times, it is the largest income producing industry, and dominates economic activity. While of lesser relative significance in Nye County, mining activities there, too, provide a major contribution to economic well-being.

Mining represents the second largest income producing industry in Nye County, providing $76,843,000 in personal income, or 18.9 percent of total county earnings in 1989. And, in 1989, the minerals industry was also the second most important employer in the county, with 1,909 jobs.

Assessed valuation for net proceeds of mines for 1988-1989, amounted to $129.6 million in Nye County, and $12.1 million for Esmeralda. Assessed value of mining property totaled $55.9 million in Nye and approximately $9 million in Esmeralda County. Taken together, these assessments yielded slightly more than $3 million in tax revenues for Nye County and $437,000 for Esmeralda County.

Lands

Potential changes in the proportionality between public and private lands could affect both the tax base and BLM payments to the counties in lieu of property taxes. Assessed valuation for Esmeralda and Nye Counties in the fiscal year 1988-89 amounted to $33,109,214 and $320,737,641 with tax rates per $100 of assessed valuation at 2.0871 and 1.6182 respectively. BLM payments in lieu of property taxes for fiscal year 1989 amounted to $65,000 for Esmeralda County and $472,000 for Nye County.

Corridors

The designation of corridors would enable more efficient planning of future energy, communication, and transportation facilities. The lack of designated corridors sustains high planning costs to utility companies and results in longer processing time for right-of-way applications. However, utility construction and operating costs can be minimized since there are no designated corridors and no restriction of opportunities to develop the shortest right-of-way possible.

Recreation

Expenditures for recreation in the planning area contribute to the regional economy through the purchase of lodging, services, equipment, fuel, and food. Public land resources that are associated with recreation and affected by this plan include wildlife, wild horses and burros, wilderness, lands, and riparian areas.

Current participation in hunting, fishing, and other dispersed recreation, is estimated at 99,340 days (see Table 3 F). Expenditures in the local economy, deriving from these recreation activities, are estimated at a total of $2,351,000, in 1990. This expenditure level provides about $695,900 in income, and generates about 60 jobs in the local economy.

Some wildlife population adjustments may be expected as a result of alteration of habitat condition, or changes in the amount of vegetation available for fish and wildlife. Adjustments in fish and wildlife populations, either increasing or decreasing, would (in the long-term) influence the number of hunter and angler days, thereby affecting changes in expenditures, income, and employment.

Limitations and restrictions on OHV use are not likely to have an effect on local recreation expenditures. While it is most likely that both formal and informal OHV use would be effectively accommodated within the alternative proposals, vehicle-dependent recreation which may be excluded or restricted in certain areas would not simply cease to occur but instead, would be displaced to adjacent public land areas.

While public lands recreation activities do contribute, in some measure, to the local economy, any potential gains or losses would not be of sufficient magnitude to have any significant impact. Recreation expenditures will not, therefore, be considered further in the impact analysis.

Neither OHV designations, nor adjustments in wildlife populations will produce a measurable difference. A more significant effect will result from continued growth in population or tourism in the area. As such growth may reasonably be expected, we may also expect public land recreation and recreation-associated expenditures to continue to increase in the RMP area.

Forest Products

Forest products harvested from the public lands in the RMP area, in 1990, included 706 cords of firewood, 785 Christmas trees, two wild plants, 14 cacti, 66 Joshua trees, and five pounds of pinyon pine nuts. These products provided $8,014 to BLM in permit sales. Based on fair market values, the benefit to permit holders is estimated at about $89,300.

While of great benefit to local consumers, harvesting and sales of woodland products from lands managed by the BLM are of little significance in the local economy. Permit sales and the harvesting of forest products will not be significantly affected by any proposed management actions and will not be further considered in the economic analysis.

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

Introduction

This chapter discusses the environmental impacts in terms of change which could occur over the next 20 years through implementation of any of the alternatives discussed in Chapter 2. These impacts are outlined in the Summary section in the front of this document.

The following assumptions were used by the interdisciplinary team in determining impacts:

1) funding and personnel would be sufficient to implement any alternative described in Chapter 2.

2) impacts shown are expected to occur during the 20-year life of the plan.

3) BLM would adhere to all Bureauwide requirements and standard operating procedures providing for protection of the environment.

4) trends in resource use would be as follows:

a) transmission line corridors would be needed to transmit energy through the resource area.

b) the demand for organized or competitive off highway vehicle events would increase in the resource area.

c) mineral exploration and development would continue at approximately the same rate as in the past.

d) developments associated with land use authorizations and ownership adjustments would increase as the population increases.

e) levels of forage use by livestock, wildlife, and wild horses and burros continue to be determined in accordance with BLM's ongoing monitoring and evaluation policy.

5) short term impacts would last five years or less. Long term impacts would last for more than five years.

ALTERNATIVE 1

IMPACTS TO AIR RESOURCES

From recreation:

Air quality would be degraded by fugitive dust released during off-highway vehicle events. Impacts would be of short duration.

From mineral exploration and development:

Air quality would be degraded during construction and mining activities as a result of vehicular emissions and fugitive dust. Nevada State standards for particulates may be exceeded for short time periods on some project sites, but should not be exceeded resource area wide. Mitigating measures are applied for dust and emission abatement. Reclamation is designed to restore the long term productivity of the resources.

IMPACTS TO WATERSHED

From riparian management:

Improved management of 13.5 miles of riparian habitat to establish woody vegetation and stabilize streambanks would result in a reduction of streambank erosion and decrease sedimentation. Improved water quality and watershed conditions would result on 42 percent of the streams shown on Table 3 C.

From livestock grazing management:

The implementation of grazing management would increase ground cover and reduce erosion rates.

Rangeland improvements, such as fences and water developments, destroy small amounts of vegetative cover during construction. This activity would increase soil erosion on approximately 1,025 acres in the short term. About 167 acres would remain denuded in the long term.

Vegetative manipulation projects on 38,760 acres would increase soil erosion in the treated areas during, and for a short time following, treatment. Two years after reseeding, erosion rates would be less than current levels.

From forestry and vegetative products:

Firewood harvesting would destroy vegetation and disturb soil, resulting in a short term increase in erosion. As the understory vegetation is released from competition with overstory trees, ground cover would increase and soil erosion would be reduced.

From mineral exploration and development:

Waters found in oil and/or gas producing formations are part of a closed system and will not impact the general ground water of the region. The oil and gas industry must comply with standards to ensure reinjection of produced waters does not degrade ground water aquifers.

There would be a short term loss of soil cover, and a subsequent increase in erosion potential. Soil compaction will occur wherever vehicular use is concentrated. Most long term impacts can be reduced or eliminated by minimizing disturbed areas, using best available construction techniques and by mitigating disturbance through soil stabilization and revegetation.

Long term impacts would occur on 3,900 acres of open pit mining which would not be reclaimed.

IMPACTS TO VEGETATION

From vegetation management:

Management of the vegetation which provides for the physiological needs of the key plant species would have a positive impact on vegetation in the long term. Plants which are particularly desirable to livestock, wildlife and wild horses and burros would be permitted to produce and store adequate amounts of food energy to sustain themselves. In addition, these plants would be permitted to produce seed for the production of new plants.

From forestry and vegetative products:

Firewood harvesting of both green and dead wood would have a negative impact on vegetation in the short term. These impacts would involve the destruction of live trees and the crushing and trampling of understory vegetation. However, harvesting overstory piñon and juniper trees releases understory vegetation from competition with trees. Biological diversity, understory production and ground cover would increase in the long- term. There are 314,123 acres of piñon- juniper woodland in the resource area, about 9,380 acres (three percent of the piñon-juniper woodlands) could be cut during the life of this RMP. Firewood cutting areas are not clearcut because one-third of the trees on these areas are too small for firewood. Harvesting trees would cause minimal impact on pine nut production, since only about three percent of the woodland resource could be harvested during the life of this RMP.

Joshua tree harvest would have little impact on the total Joshua tree population. Removing Joshua trees would have little effect on adjacent vegetation.

Only 880 acres are open to the collection of common desert plants. Impact would be slight.

From rangeland improvements:

The largest impact to vegetation from any range improvement project would be from vegetative manipulation. Short term impacts would be a loss of existing vegetative cover and biomass. Once established, the plants resulting from seeding would mitigate these impacts. The long term effect of seedings would be to diversify vegetation and increase forage production.

The short term impacts of developing wells, pipelines, fences, reservoirs, and springs would be to disturb 1,052 acres of vegetation cover. Because the disturbance would be scattered over a large area, the short term impact would

be insignificant. The long term effect of these projects would be to improve distribution and control of livestock, which would cause an increase of vegetative biodiversity, production, and ecological status.

From livestock grazing management:

Vegetation conditions would improve as more intensive management is implemented. Short term impacts would be small increases in plant vigor, litter, production, and seedling establishment. Long term impacts include larger increases in plant vigor, litter, production and seedling establishment, plus an increase in biodiversity, ecological status, plant density, palatable shrubs, and grasses. Impacts of grazing to major vegetation types follow:

Salt Desert Shrub The more productive saltbrush ecological sites would respond well to intensive grazing management during normal and wet precipitation years. The less productive sites would change very slowly. Small improvements would occur during wet years. More palatable grasses and shrubs would increase.

Sagebrush Grazing would have little impact on black sagebrush sites. During normal and wet precipitation years Wyoming big sagebrush sites would respond to intensive grazing management. The presence of more palatable bunch grasses would increase as sagebrush decreases.

Piñon-Juniper Woodlands These areas would not be significantly impacted by grazing.

Hot Desert The few productive sites would respond to intensive grazing management in a positive manner.

Alkali Meadows and Bottoms These areas would respond well to intensive grazing management with an increase in palatable grasses.

Mountain Mahogany due to the inaccessibility of these types, mountain mahogany would not be impacted by grazing use.

Riparian areas would respond well to improved grazing management with increases in vegetation diversity, density and production.

From wild horses and burros

Grazing by wild horses and burros impacts the major vegetation types in the same way as described for lifestock grazing

From lands and rights of way

Overall agricultural entries would have a small impact on vegetation. Of the 9,042 acres in the resource area available for agricultural entry only seven percent (633 acres) would be developed.

From mineral exploration and development:

Mineral exploration and development activities would disturb 36,708.5 acres of vegetation as follows: locatable minerals, 24,650 acres; oil and gas, 944 acres; geothermal, 364.5 acres; non-energy leasing, 7,750 acres; and mineral material sales, 3,000 acres.

Short term impacts from surface disturbing activities are: 1) increased soil erosion by wind and water; 2) a small loss of forage and habitat for livestock, wild horses and burros, and wildlife; and 3) a visual impact. Reclamation and revegetation should minimize these effects. Long term impacts tend to be mainly visual since disturbed soil supports different vegetation from undisturbed soil.

From fire:

Overall, fire would have a small impact on vegetation since wildland fire is infrequent in the resource area. Prescribed and natural fires on piñon-juniper or big sagebrush vegetation can be managed to release beneficial forage plants from the understory. Biological diversity increases after the initial loss of vegetation. Recovery from fire on salt desert shrub vegetation is slow, due to low precipitation

and poor soils. Without seeding and protection from grazing, these sites would be dominated in the long term by introduced annuals (primarily cheatgrass or halogeton).

IMPACTS TO WILDLIFE HABITAT

From wildlife habitat management:

The development and successful implementation of habitat management plans (HMPs) would improve wildlife habitat and allow for increases in wildlife populations in accordance with land use plan objectives.

Statewide, bighorn sheep population and production would benefit from the introduction or reintroduction of bighorn sheep into the Hot Creek, Goldfield, Amargosa, Magruder/Palmetto, Monte Cristo, Montezuma, Silver Peak, Sawtooth, Bare Mountain, and Gold Mountain habitat areas.

Mule deer, bighorn sheep, and sage grouse would benefit by the protection given to key habitats from the adverse impacts of mineral leasing.

Predator control would continue. The value of predators in controlling rodent and rabbit populations would not be realized.

From riparian habitat management:

Wildlife would benefit from improved riparian areas and a greater diversity of species would find suitable habitat along the 10 miles of stream which would improve and the three miles which would be maintained in satisfactory condition.

Trout and other aquatic wildlife would benefit from riparian improvement along 9.4 miles of stream. Improved management would increase shading of streams, lowering water temperatures and decreasing sediment loads. There would be an improvement in overall water quality.

From forestry and vegetative products:

Mule deer would benefit from firewood sales on 9,380 acres of piñon/juniper woodland. Removal of trees would create openings in the overstory canopy which would provide additional sunlight, moisture, and nutrients for important browse and forage species. Residual piñon/juniper trees would provide adequate thermal and escape cover.

From livestock grazing management:

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horse and burro management are made, wildlife habitat is expected to improve.

Antelope, mule deer and bighorn sheep habitat would improve through the increased availability of important forage plants. No impacts would occur to Rocky Mountain elk.

Sage grouse habitat would continue to be adversely impacted by season-long livestock grazing. Wet meadows and stream bottom riparian areas are preferred by sage grouse for brooding, and by livestock for grazing and bedding.

Since competition for available water is a limiting factor in much of the resource area, wildlife would benefit from the five reservoirs, 25 spring developments, 28 wells, and 41 miles of pipeline to be developed to imrpove livestock management.

Waterfowl and riparian habitats would benefit from the grazing treatments proposed in the Railroad Valley Wildlife Management Area. These are designed to periodically remove rank old growth and to stimulate new growth of riparian vegetation.

From wild horses and burros

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation

program are implemented and adjustments in livestock and wild horse and burro management are made, wildlife habitat is expected to improve.

From lands and rights-of-way:

Land disposal could have long term negative impacts on wildlife. Blocks of land in historical bighorn sheep habitat, deer winter habitat, sage grouse habitat and antelope habitat have been identified for disposal . All land disposal is discretionary, and is preceded by an environmental analysis. This process identifies important resource values such as important wildlife habitat, which should be retained in federal ownership.

The disposal of lands along Chiatovich Creek could have a negative impact on the wintering deer herd.

Adverse impacts to deer, bighorn sheep and sage grouse could result from disturbance during critical periods from construction and other authorized activities.

Adverse impacts to bighorn sheep could result from access roads developed for utility rights-of-way or communication sites on Lone Mountain, Bare Mountain and in other locations. There would be an increase in the amount of disturbance of sheep populations by humans.

From recreation:

An adverse short term impact to wildlife could occur due to off-highway vehicle events in critical habitats or during such critical periods as birthing or rearing of young. High speed competitive events could increase the potential for harassment of bighorn sheep and other wildlife when event routes pass by critical waters. Spectators could also damage habitat and their presence may add to the disturbing of wildlife.

From utility corridors:

Rights-of-way authorized in utility corridors in the south half of the resource area would adversely impact 23,000 acres of mule deer habitat. However, these corridors have existing rights-of-ways, and added impacts would not be significant. Utility corridors have not been identified in the north half of the resource area; thus, impacts cannot be estimated.

From mineral exploration and development:

Adverse impacts to wildlife could result from mineral exploration and development activities which include; loss and degradation of habitat, harassment, and a proliferation of roads which fragment the habitat. These impacts are reduced by: a) important wildlife habitats being protected from the potential adverse impacts of mineral leasing through closures of 13,160 acres of habitat important to mule deer, bighorn sheep and sage grouse, b) no surface occupancy on 3,960 acres of riparian habitat and c) seasonal restrictions on 28,760 acres of mule deer and sage grouse habitat.

IMPACTS TO SPECIAL STATUS SPECIES

From livestock grazing management:

Grazing by livestock and wild burros could have an adverse impact on the Amargosa toad. Grazing by wild burros and livestock along the Amargosa River and nearby springs removes vegetation which if undisturbed would provide cover for the toad and habitat for insects upon which the Amargosa toad feeds. The river also provides habitat for the Oasis Valley speckled dace. Excessive grazing use degrades riparian habitat along the Amargosa River.

The population of Railroad Valley springfish would be maintained by the continued protection of North Spring, Reynolds Spring and the refugium at Chimney Spring through the exclusion of livestock. Periodic use by livestock would prevent riparian vegetative growth from encroaching into open water. This encroachment degrades the springfish habitat.

Implementation of the grazing restrictions from the *Biological Opinion for the Proposed Livestock Program Within Desert Tortoise Habitat in Southern Nevada* would ensure tortoise recruitment is sufficient to maintain a stable population in the long term.

From lands and rights-of-way:

Approximately 10,726 acres of Non-Intensive Category III desert tortoise habitat are identified for discretionary disposal. Important habitat for the Amargosa toad and Oasis Valley speckled dace (55 acres) are identified for discretionary disposal. Disposal of these lands would have a significant adverse impact. However, since all land disposal actions are discretionary and are preceded by an environmental analyses, this process would identify any sensitive, threatened or endangered species habitat and provide for mitigation and/or avoidance of possible adverse impacts. All Federal actions which might impact a threatened or endangered species would be evaluated by the U.S. Fish and Wildlife Srvice (USFWS) under provisions of Section 7 of the Endangered Species Act.

From recreation:

There would be negative impacts to desert tortoise habitat, Amargosa toad habitat and Oasis Valley speckled dace habitat from casual off-highway vehicle use. Off-highway vehicle use could result in killing of individual animals and cause a proliferation of trails, destroying and fragmenting habitat. Desert tortoise surveys conducted prior to off-highway vehicle events minimizes the number of tortoises that are run over during the event. All Federal actions which might impact a threatened or endangered species would be evaluated by the USFWS under the provisions of Section 7 of the Endangered Species Act.

Amargosa toad and Oasis Valley speckled dace habitat would continue to be adversely impacted by off-highway vehicle use in the Amargosa River drainage.

From mineral exploration and development:

Requirements listed under Section 7 of the Endangered Species Act would prevent any serious impacts to the listed or candidate T&E species in the resource area.

Approximately 24,000 acres of Non-Intensive Category III desert tortoise habitat are located within an area of high potential for locatable minerals. The remaining 46,600 acres is in an area of moderate potential. Although this is northern extremity of desert tortoise range, and the population density is low, there is the potential for a small number of tortoises to be killed by mining activity, and for habitat to be lost. Exploration activities would result in short term negative impacts to the tortoise. The term of development activities would be dependent on the life of the mine.

Potential impacts to the Railroad Valley springfish from fluid mineral development would be mitigated by a no surface occupancy restriction on mineral leasing on 80 acres in an area of high potential for oil and gas, and moderate potential for geothermal resources. Adverse impacts from locatable mineral exploration and development are not anticipated since the mineral potential is low.

Long term adverse impacts to Amargosa toad and Oasis Valley speckled dace habitat would continue because their habitat lies within areas delineated as having high or moderate potential for locatable minerals. Mining of this area would result in mortality and loss of habitat.

IMPACTS TO RIPARIAN HABITAT

From riparian management:

Riparian habitats would benefit in the long term by improved management and livestock restrictions. Improvement would result from increased density and diversity of vegetation and streambank stabilization. As fencing and exclusion of livestock is implemented on the 5.5 miles of stream which are in unsatisfactory condition, improved riparian habitat would result. Imrpovement would occur along Barley

Creek, Corcoran Creek, Mosquito Creek, Little Meadow Creek, Barker Creek, Moores Creek and Clear Creek.

From livestock grazing management:

As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horses and burros are made, riparian habitat is expected to improve in the long term. The impact of grazing on riparian habitat depends on the accessibility of the area, the number of grazing animals in the area and the period and duration of use. The lack of water and sparse vegetation on much of the resource area causes livestock, and to a lesser extent wild horses and burros, to concentrate on the riparian habitat for water, forage and shade. Under current management, season-long grazing takes place in most allotments in the resource area. The impact on riparian vegetation is continuous over-use, which reduces stream flow, water quality, increases erosion and invasion of undesirable vegetation. Riparian areas would respond well to improved grazing management with increases in vegetation diversity, density, and production in the long term.

Range improvements would provide additional water, forage, and control facilities to somewhat reduce grazing impacts on riparian areas. There are 23 springs proposed for development, which would protect the spring sources from the adverse impacts of utilization by livestock and wild horses and burros. This would provide for some improvement of aquatic habitat conditions through reduced erosion, improved water quality, increased ground water recharge, more stabilized streambanks, more productive habitat, more diverse stream channels and increased species diversity. However, most existing spring developments do not exclude livestock and wild horses and burros, and significant grazing impacts on spring sources and associated riparian zones would continue.

From lands and rights-of-way:

Riparian areas could be adversely impacted since eight miles of streamside riparian areas would be identified within blocks of land identified for discretionary disposal. However, all land disposal is discretionary and is preceded by an environmental analysis to identify important resource values which should be retained in federal ownership.

From recreation:

Unrestricted off-highway vehicle use would adversely impact the riparian conditions along the Amargosa River drainage by compacting soils and crushing vegetation.

Limiting off-highway vehicles to existing roads and trails in the Railroad Valley Wildlife Management Area would protect 4,150 acres of riparian areas.

From mineral exploration and development:

Of the 32.8 miles of streamside riparian identified on Table 3 C, 29 percent are in areas of high potential, 31 percent in areas of moderate potential, and 40 percent are in areas of low potential for locatable minerals. Mineral exploration and development could adversely impact riparian zones.

Although riparian areas in Railroad Valley occur within an area of high potential for oil and gas, adverse impacts would be minimal due to a no surface occupancy stipulation on fluid mineral leasing on 3,720 acres. A 14,710 acre withdrawal form mineral entry on the Railroad Valley Wildlife Management Area would protect an estimated 3,120 acres of riparian areas. Riparian areas, including springs and seeps, would be given protection by the standard terms and conditions applied to leases.

IMPACTS TO FORESTRY AND VEGETATIVE PRODUCTS

From forestry and vegetative products:

No adverse impacts would occur to the woodland resource. The current level of harvest is within the sustained yield on the total available woodland acres. Sustained yield on the 27,293 acres of available woodlands is approximately 1,000 cords per year. The demand for firewood has averaged 675 cords for the past three years. It is anticipated that future demand would increase until the sustained yield of 1,000 cords a year is reached. The greenwood cutting areas would naturally reforest in a short period of time since the smaller trees are not cut for firewood. The 9,380 acres identified as greenwood cutting areas provide adequate volume to last another 15 years, if the full 1,000 cords are harvested annually, and no other harvest areas are identified. Harvesting trees would have minimal impact on pine nut production.

Only 880 acres are open to the collection of common desert plants, therefore there would be only a slight impact.

From mineral exploration and development:

Mineral exploration and development could have a positive impact on woodland management. The development of roads and trails in stands of piñon/juniper resulting from mineral exploration would improve the access to woodland products and help to more evenly distribute the harvest of firewood and other vegetative products.

Negative impacts would be minor since reasonably foreseeable development scenarios for all mineral programs anticipate that less than one percent of the resource area would have surface disturbance due to mineral location and development.

IMPACTS TO LIVESTOCK GRAZING MANAGEMENT

From vegetation management:

Managing for the physiological needs of the key forage species would have a variable impact on grazing management. The impacts could range from none to a positive or negative. If livestock numbers are decreased to ensure that the needs of identified key forage plants are met, a negative impact on livestock operations would result. In the long term, as resource conditions improve, the impacts can be reduced or totally eliminated through restoration of the initial reductions.

From wildlife habitat management:

The restriction of livestock grazing from 9,127 acres of critical deer winter range closed to grazing at Morey Bench and Toiyabe Bench has had a minor negative impact on grazing management within these areas. As habitat conditions within these areas improve and other conditions stipulated in existing plans are met, the periodic use of these areas by livestock basis can have a positive impact through increased management options.

Managing for reasonable numbers for most species would have minimal impact on grazing management as much big game habitat is outside of areas frequented by livestock. Managing habitat conditions to allow for antelope to increase to reasonable numbers would have a negative impact on grazing management in some allotments. Since the area of use by antelope, livestock and wild horses overlap, reductions would be made in livestock and wild horse use to allow for habitat conditions to improve and for antelope populations to increase.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat within portions of two allotments. Should use exceed the levels specified in the *Biological Opinion for the Proposed Livestock Program Within Desert Tortoise Habitat in Southern Nevada*, the

lessees would have to remove all livestock from this habitat. However, the impact on these operations would be minimal as there is grazing land available in both allotments outside of tortoise habitat to which livestock can be moved. Therefore impacts to grazing management would be minimal.

Critical habitat for the Railroad Valley springfish has been excluded from livestock grazing where it occurs on public lands. A total of 124 acres of springfish habitat are currently excluded from livestock use in one allotment. These exclusions have had no impact on grazing management within this allotment.

From riparian management:

There are 2,317 acres of riparian areas within the Railroad Valley Wildlife Management Area excluded from grazing. No adverse impacts to grazing management are associated with this action. In the long term, there might be some positive impacts as livestock are used to remove encroaching riparian vegetation.

There would be a short term negative impact on some allotments if current management does not improve current conditions on 582 acres of riparian habitat. If current conditions continue, this 582 acres of riparian habitat would be excluded, primarily through corridor fencing. The impact would be the loss of grazing on some of the most desirable forage and summer shading areas within many of the allotments. Fencing could also create additional distribution problems. In the long term, there would be a positive impact through increased forage production in the riparian zones and increased management options for possible use in these areas.

From wild horse and burro management:

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing for wild horse and burro population levels, as determined from the findings of the monitoring and evaluation program, could require a reduction in livestock numbers to provide habitat for wild horses and burros and for other resource values.

From cultural resource management:

The impacts of cultural resource management on livestock grazing management would be minimal. Normally, proposed livestock management facilities are either relocated or rerouted to protect cultural sites.

From lands and rights of way:

This alternative would have a negative impact on grazing management through the transfer of up to 59,082 acres of available grazing lands out of federal ownership. This would reduce the available forage and grazing lands on a permanent basis. The transfers would result in reduced grazing capacity on an allotment specific basis, although the total potential loss of acreage is less than two percent of the available grazing lands on the entire resource area. Furthermore, all land disposal is discretionary and is preceded by an environmental analysis to identify resource values to remain in federal ownership. The impact would be further aggravated as communities expand into current livestock grazing areas. This would increase livestock-human contacts and vandalism of range improvements. Those lands identified for agricultural entry would be used for the production of feed crops and could increase management options.

From mineral exploration and development:

Areas disturbed by mineral exploration and development would be reclaimed. Therefore, long term or significant impacts to forage production are not anticipated. Short term negative impacts would result from the temporary loss of 1,308 acres of available grazing lands through oil, gas, and geothermal exploration and development. This would not be considered significant when viewed in relation to the total acreage available. Short term negative impacts would result from the temporary loss of 24,650 acres of available grazing lands due to the exploration and development of locatable minerals within the

resource area. Short term negative impacts would also result from the temporary loss of available grazing lands to the sale of mineral materials. Based upon the projected development of mineral materials, 3,000 acres of available grazing lands would be temporarily lost to livestock operators throughout the resource area. This represents one-half of one percent of the total acreage open to grazing within the resource area.

From fire:

Both positive and negative impacts to grazing management can result from fire. Negative impacts result from a short term loss of forage disruption of existing management systems and possible closure to grazing for revegetation of the burn site. A long term negative impact could occur if the burned area is invaded by unpalatable plants such as rabbitbrush or halogeton, thus effectively reducing forage production. Positive impacts can result from fire by reducing the density of tree and brush species and releasing more desirable forage. Since naturally occurring fire is infrequent (only 1,947 acres burned between 1980 and 1990) impacts would be insignificant. The use of prescribed fire for vegetative manipulation on approximately 36,400 acres would result in long term positive impacts to forage availability and increased management options.

IMPACTS TO WILD HORSES & BURROS

From wildlife habitat management:

The actions proposed for wildlife habitat management, such as big game guzzlers and reintroduction of bighorn sheep, could result in wildlife populations expanding into areas currently being utilized by wild horses and burros. This could result in long term competition between wild horses and burros and wildlife for forage and water.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat in the Bullfrog HMA (more than 45 percent of the HMA). Excess burros would be removed if their use of forage exceeds the levels specified in the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada*.

Long term negative impacts to burro populations if herd-size reductions are necessary to correct over use by burros on important Amargosa toad habitat.

From riparian habitat management:

Fencing of the riparian areas on Eden Creek, Hunts Canyon Creek, and Clear Creek would not significantly impede natural travel routes of wild horses and burros.

From forestry and vegetative products:

Minimal adverse impact on wild horses and burros would occur from use of the Silver Peak greenwood cutting area. Human intrusion during actual cutting may cause some stress to the animals. The long term effect would be more open areas with better visibility, and an increase in grasses and forbs growing on 2,600 acres.

From livestock grazing management:

Wild horses and burros would be beneficially impacted through improved grazing management and the resultant improved range conditions.

Range improvement projects could beneficially impact wild horses and burros by establishing more dependable supplies of water and providing for better distribution of animals in the HMAs.

Proposed fencing along U.S. Highway 6 through Stone Cabin HMA would have an adverse impact on wild horses. The fence would divide the Stone Cabin HMA into two separate use areas and result in a long term restriction on travel patterns.

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing

for livestock in HMAs, as determined from the findings of the monitoring and evaluation program, could require a reduction in wild horse and burro numbers to provide forage for livestock.

From wild horse and burro management:

If monitoring data show that grazing use in HMAs is causing an unacceptable level or pattern of use, excess wild horses and burros and livestock would be removed. This action would have a beneficial impact because adequate amounts of food, water, shelter, and space would be available for those animals left on the range. There would be an adverse impact on the size of wild horse and burro populations.

From lands and rights-of-way:

There are 4,680 acres identified for discretionary disposal inside HMAs. The disposal of acreage within the HMA boundary could have a long term adverse impact because it reduces the size of the HMAs, resulting in loss of food, shelter and water, and in increased crowding of the animals. This could lead to stress on the wild horses and burros and conflicts with owners of private lands within the HMAs.

From recreation:

Off-highway vehicle events through HMAs, especially near important water sources, may cause short term adverse impacts on wild horse and burro herds. Events run near a water source could result in the animals avoiding the waters for the duration of the race. May through June is peak foaling season; events at that time could impact the foals if the mare and foal are separated.

From mineral exploration and development:

The exploration and development of minerals could have a negative impact on wild horses and burros. In the short term such activity may drive animals away from water and forage. Mineral activity lasting for an extended period of time could permanently modify the normal grazing and watering practices. Wild horses and burros would either adapt to the disturbance, or move to other locations. Most disturbed areas would be reclaimed, reopening these lands to wild horses and burros at that future date.

IMPACTS TO CULTURAL RESOURCES/PALEONTOLOGICAL RESOURCES

From forestry and vegetative products:

Opening 9,380 acres of piñon/juniper woodlands to woodcutting has potential to significantly impact 226 cultural properties, as well as the traditional values of local Native American populations who rely on the piñon nut harvest for a portion of their sustenance. Long term impacts from woodcutting include physical damage to cultural features, and horizontal and vertical displacement of artifacts. This would result from trees, equipment, and vehicles being dragged or driven over sites. Increases in illegal excavation and collection activities are possible if access is improved. Continued use of the Baxter Springs greenwood cutting area would result in increased disturbance to an undetermined number of cultural sites.

From livestock grazing management:

Rangeland improvements would impact 39,785 acres. Vegetation manipulation efforts are anticipated to occur on approximately 38,760 acres. Efforts to manipulate vegetation through prescribed burns or manual, mechanical, or chemical methods could result in significant damage to cultural properties. These might also impact traditional values of native Americans. Manual and mechanical methods can alter or destroy the spatial context of artifacts and features. Prescribed burns may cause the destruction of perishable artifacts near the ground surface, heat spalling on rock art panels, and alteration of artifacts so that some dating techniques would no longer be usable. Some chemical techniques may preclude later use of Carbon-14 dating.

Effects from continued and increased use of 38,760 acres by cattle include horizontal and vertical displacement of artifacts, damage to artifacts and features, destruction of sites during construction of rangeland improvements, and surface disturbance associated with vehicles used by permittees. An estimated 1,431 sites could be affected by activities associated with rangeland improvement.

Livestock are presently excluded from 11,444 acres. Protection from disturbance associated with rangeland improvements and grazing is afforded to 412 cultural resource sites estimated to be present on this acreage. Several riparian zones are included in these exclusions, which enhances the probability for site protection. Riparian environments are highly sensitive locations for cultural resources.

From cultural resource management:

Emphasis would be placed on maintaining an active cultural resources program. ARPA surveillance points would be established in a number of locations. ARPA law enforcement and monitoring plans would be written for a minimum of nine sites or cultural resource districts. Activity plans would be written for approximately seventeen sites/districts over the life of the plan. A Class I overview would be prepared for the resource area to help guide management decisions. These actions would result in long term benefits to existing cultural resources.

Interim management directions for archaeological districts in northern Railroad Valley would result in decreased impact to sites/features by restricting fluid minerals development and prohibiting discretionary surface disturbing activities in the Trap Springs/Gravel Bar area, until such time as a comprehensive research protocol could be developed and implemented.

A comprehensive research protocol and data recovery program would be developed for the Trap Springs, Gravel Bar, and Stormy-Abel prehistoric districts. Data recovery at these localities would benefit the scientific community, but would result in partial destruction of the sites through controlled excavation. Eventual release of the Trap Springs and Gravel Bar districts for fluid minerals development could be expected to result in destruction of the remainder of these sites. Degradation of sites and features in the vicinity of Storm, Coyote, and Abel springs would continue.

Jumbled Rock Petroglyphs (10 acres), Moores Station Petroglyphs (10 acres), Mountain View Arrastra (40 acres), Tybo charcoal kilns (80 acres), and Berlin Town Site (704 acres) would remain closed to mineral leasing, which would serve to protect these cultural properties.

From lands and rights-of-way:

There are currently 59,082 acres of land identified for discretionary disposal. Disposal of public land and ensuing construction activities could result in complete destruction of cultural resource properties. Disposal of land for agricultural purposes could result in partial or complete destruction of sites as a result of field preparation methods or intensive use of the area by livestock. Land disposals could increase access into areas, with resultant illegal excavation and collection activity. It is estimated that 1,075 cultural properties may be present in areas proposed for discretionary disposal. Where impacts to cultural resources are unacceptable, land disposals will not be allowed .

The closure of the four acres around the Rhyolite Bottle House from mineral entry would have a positive impact on this historical property. These four acres represent the only acreage within the townsite protected from mineral development.

Acquisition of 320 acres at Moores and Pritchards Stations would have a beneficial impact because it would bring two potentially significant sites under federal control, providing some degree of protection from land disturbing activities. Another six cultural properties might be present on this acreage.

From recreation:

A total of 5,141,091 acres would remain open and unrestricted to off-highway vehicle use. An estimated 124,064 sites may be present within this area. Impacts from off-highway vehicle use could cause partial or total destruction of features and sites as a direct result of vehicular traffic, destruction of sites and features as a result of increased erosion associated with changes in vegetation/ground cover, and a rise in illegal excavation and collection activities associated with increased access into previously undisturbed areas. During competitive events, sites located in pit areas and along the raceway might be partially or wholly disturbed, and collection of surface artifacts by spectators could be expected. Restricting off-highway vehicle use to existing roads, trails, and washes, on a seasonal basis, or by type of user on 950,000 acres might afford some slight degree of protection to approximately 22,925 sites. In this instance, direct impacts of off-highway vehicle use would be confined to areas of existing disturbance, but a rise in illegal excavation and collection activities resulting from increased access to previously inaccessible areas can be expected. Ten acres currently closed to all off-highway vehicle use might provide some protection to one site from impacts noted above.

From utility corridors:

A total of 326 miles of utility corridors have been designated in the south end of the resource area; no corridors are presently identified in the northern end of the resource area. The designation of utility corridors would not directly impact cultural resources. However, impacts to an undetermined number of cultural resources would result if one or more major power lines are constructed within these corridors. Because each corridor is three miles wide, impacts directly associated with construction are expected to be minimal as relocation of towers and access roads could be adjusted to avoid cultural properties. However, construction of service roads within utility corridors would increase access into previously inaccessible areas, leading to a rise in incidents of vandalism, and illegal excavation and collection.

From mineral exploration and development:

Impacts to cultural resources from fluid mineral leasing and geophysical exploration include destruction of some sites during construction of well pads, access roads, and other facilities. Furthermore, damage to sites from erosion in areas where vegetation has been altered or destroyed could be expected. Sites in sand dune systems are particularly vulnerable to this type of impact. Other possible impacts include destruction of or alterations in the character of artifacts and features from accidental spills of petroleum products and/or other substances. Such contamination would preclude some kinds of analysis, such as Carbon-14 dating and blood residue studies. Vandalism and illegal excavation and collection also seem to be associated with increased access. It is projected that a total of 944 acres would be directly impacted as a result of well pad, access road, and facility construction. There may be 32 sites within this area.

Impacts from locatable mineral development include partial or complete destruction of cultural properties resulting from exploration, increased erosion, mine development, and construction of mills and other facilities. Cultural properties might also be buried under mountains of waste rock while visible features are more likely to be illegally collected and excavated. Historic mining sites are particularly vulnerable because much mineral development occurs within historic mining districts. These include townsites, isolated homesites, mills, adits, and trash dumps. Prehistoric quarry sites are often found in areas of heavy mineralization, and are also subject to intense impact from mineral development. An estimated total of 24,650 acres would be developed as a part of the locatable minerals program. This has the potential for adversely affecting an estimated 538 sites. At this time there are 21,139 acres withdrawn from mineral entry. Such restrictions might afford some protection to approximately 499 sites.

Impacts associated with mineral materials development include partial or complete destruction of cultural properties and paleontological localities. Development of mineral materials are projected for 1,000 acres. This development would potentially affect 24 cultural properties. A total of 25,200 acres would be closed to the sale of mineral materials. This would eliminate impacts from this source at an estimated 608 sites.

Impacts to cultural resources from development of non-energy leasable minerals include: 1) the complete or partial destruction of sites associated with construction of access roads, evaporation ponds, and other facilities, 2) erosion or burial of sites and features in locations in which vegetation has been disturbed or removed, and 3) a rise in the number of incidents of vandalism, and illegal excavation and collection as a result of increased access. Cultural properties situated in valley bottoms and along valley margins or old lake shores are particularly vulnerable. An estimated 7,750 acres would be developed for non-energy leasable minerals. This development would potentially affect an estimated 187 cultural properties. All areas are currently open to non-energy leasable mineral development and exploration.

IMPACTS TO THE LANDS AND RIGHTS-OF-WAY PROGRAMS

From wildlife habitat management:

The actions proposed for wildlife habitat management would result in the imposition of seasonal restrictions between January 15 and May 1 on 12,640 acres of deer winter range and between February 1 and May 1 on 16,120 acres of sage grouse habitat. These restrictions would have a minor impact on the Lands and Rights-of-way Programs.

From cultural resource management:

The four acre parcel of land on which the Bottle House in Rhyolite is situated is currently classified under the now-repealed Small Tract Act. This outdated classification will need to be removed, and the lands withdrawn from mineral entry under Section 204 of the Federal Land Policy and Management Act. This action would have no impact on the Lands and Rights-of-Way Program. Other lands within Rhyolite would remain identified for discretionary disposal.

The Gravel Bar Road within the Trap Springs Gravel Bar would continue to be closed. This has a negative impact on the Lands and Rights-of-way Program because the use of this road would make it simpler and safer for crude oil trucks coming from the Grant Canyon Field to get to the Petro Source Refinery.

From lands and rights-of-way:

Public lands not identified for discretionary disposal in the RMP are retained in Federal ownership and are managed by BLM. Unless these lands are dedicated to a specific use or uses or are included within a right-of-way avoidance or exclusion area, they are available for consideration for rights-of-way or other discretionary land use authorizations such as permits, FLPMA leases, airport leases, etc.

A total of 50,040 acres of land would be identified for discretionary disposal under the sale and exchange authorities, and 9,042 acres would be identified for disposal under the agricultural land laws. The land identified for disposal around Tonopah, Round Mountain, and Silverpeak is inadequate to accommodate projected growth. The land identified for disposal around Beatty does not allow for expansion onto the flat south of town. There are no lands identified for disposal to accommodate expansion at isolated ranches or to aid in the resolution of trespass. This would severely impact the BLM's ability to be responsive to the needs of local residents and rural Nevada communities.

Lands would be acquired at Moores Station and Pritchards Station. These acquisitions would have no impact on the Lands and Rights-of-Way Program other than an increase in workload.

From ACECs:

The 7,040-acre Timber Mountain Caldera National Natural Landmark designation would be retained, as would the 2,560 acre Lunar Crater National Natural Landmark designation. The withdrawal of 14,710 acres for the Railroad Valley Wildlife Management Area would also be retained. None of these existing designations would have any impact on the Lands and Rights-of-way Programs.

From mineral exploration and development:

Much of the land identified for disposal under the sale and exchange authorities is encumbered with mining claims and could not be disposed of unless those claims are extinguished.

IMPACTS TO UTILITY CORRIDORS

From lands and rights-of-way:

The lands identified for disposal along US Highway 6, US Highway 95, and Nevada State Route 265 are included within the proposed utility corridors. This might lead to conflicts when and if these lands are transferred into private ownership. Private landowners might object to corridors near their property and might resist granting easements for commodity transportation and utility transmission facilities.

From utility corridors:

The fact that transportation and utility corridors would not be identified in the northern portion of the resource area would have a negative impact on the Lands and Rights-of-way Program since industry has identified a need for corridors. A right-of-way grant is required for the placement of any facilities within a designated corridor. The designation of corridors does not mean that future rights-of-way are restricted to corridors, nor does it mean that there is a commitment by BLM to approve all rights-of-way applications within corridors. An inventory for cultural resources and an environmental assessment or an environmental impact statement are required prior to the granting of a right-of-way within a designated corridor.

IMPACTS TO RECREATION RESOURCES

From watershed management:

The restriction of competitive events to existing roads and trails on 803,846 acres of fragile soils has had little adverse impact on off-highway vehicle events because existing roads are utilized. Site specific conflicts which might arise when new actions are proposed are handled on an individual basis in the environmental analysis process.

From visual resource management:

Current management direction has minimal effect on recreation resources. Managing the five scenic highways listed in the current *Esmeralda-Southern Nye RMP* to retain visual values has not conflicted with recreation uses.

From wildlife habitat management:

The impact of restricting off-highway vehicle use on 14,710 acres in the Railroad Valley Wildlife Management Area is beneficial because it helps ensure the retention of this area's wildlife diversity which is the main reason for recreational uses of the area.

From special status species management:

Current management direction has not impacted recreation resources. Conflicts which have arisen between off-highway vehicle events and desert tortoise habitat have been mitigated to the point where the proposed events have been held.

From riparian habitat management:

Current management direction to improve 13.5 miles of riparian habitat would benefit recreation resources by improving trout habitat and increasing fishing opportunities. An improved mix of recreational opportunities for the public would result.

From forestry and vegetative products:

Current management of forestry and vegetative product sales has had minimal impact on recreation resources. Restricting competitive off-highway vehicle events on 100,000 acres in the Goldfield Joshua tree area to existing roads and trails has limited the possible routes which are available.

From cultural resource management:

Current management of cultural resources has no impact on recreation resources. Conflicts between cultural resource values and proposed recreation activities such as authorization of competitive off-highway vehicle events have always been resolved and mitigated.

From lands and rights-of-way:

Current lands and rights-of-way management direction has had no impact on recreation resources. A decision to acquire Moores and Pritchards Stations would provide a future sightseeing opportunity for western history buffs.

From recreation:

Current management direction is so broad that no impacts are measurable between competing recreation resource actions, such as, actions allowing unrestricted off-highway vehicle use as opposed to actions limiting use to protect primitive values.

From WSAs:

Interim management of WSAs requires limiting vehicle use to existing roads and trails on 634,815 acres. This is an interim action pending final Congressional resolution of the wilderness designation issue. The interim restriction could remain in place for many years but would cease to apply when lands are released from wilderness study status by Congress. WSA lands designated as wilderness would be closed to all motorized and mechanical uses.

From mineral exploration and development:

Mineral exploration and development has benefitted vehicle dependent recreation uses by creating or upgrading roads into areas previously not accessible. It has negatively impacted other recreation uses oriented to roadless undeveloped areas by the very same actions. No attempt has been made to measure or estimate this impact. The impact from the relatively small area of development, when compared to the vast area of land available for the dispersed character of most recreation use, is insignificant.

IMPACTS TO FLUID MINERALS

From wildlife habitat management:

The closure of 16,280 acres of deer winter range and 5,600 acres of sage grouse habitat could result in less acres being leased. The acres closed are in areas of low potential for fluid minerals, therefore, impacts are no considered significant.

A seasonal restriction on 12,640 acres of deer winter range and 16,120 acres of sage grouse habitat would require precise scheduling of any drilling activities to avoid conflicts. If an oil field or a geothermal field was discovered in an area of seasonal restriction, that field would have to go to a maintenance status during the restricted season.

A total of 1,280 acres of sheep habitat are closed to mineral leasing. This area is a high potential oil and gas area. The current closure precludes the development of a oil and gas field. This closure prevents the drilling of 14 oil wells and the extraction of approximately five million barrels of oil.

From riparian management:

The no surface occupancy stipulation on 3,960 acres in Railroad Valley adversely affects access to a high potential oil and gas area and requires lessees to directional drill this area.

From cultural resource management:

A total of 740 acres are closed to mineral leasing at Mountain View Arrastra, Moores Station Petroglyphs, Jumbled Rock Petroglyphs, and Berlin Town Site. Consequently this acreage would be lost from the leasing pool.

From recreation management:

The closure of 30,080 acres to mineral leasing at Lunar Crater would remove the land from the leasing pool. No wells are projected to be drilled in this area.

From fluid minerals management:

The exploration and development of fluid minerals would continue to be restricted by other programs. These restrictions are summarized on Table 3 H.

IMPACTS TO LOCATABLE MINERALS

From wildlife habitat management:

The 14,710 acre withdrawal in the Railroad Valley Wildlife Management Area is located in land potentially valuable for lithium. This withdrawal totally precludes exploration and development. It is estimated that one permit would be impacted during the life of the plan. Each withdrawal reduces the land base from which to explore, develop, and mine. This land is permanently lost to the locatable minerals industry.

From cultural resources management:

Four acres having high mineral potential are currently classified not open to mineral entry at Rhyolite. This acreage is removed from exploration and development. This situation might make development of the mineral resource around Rhyolite difficult because of this small acreage is unavailable.

IMPACTS TO MINERAL MATERIALS

From visual resource management:

The Lunar Crater National Natural Landmark is closed to mineral material sites. An estimate of three sales per year would be lost by this restriction. In addition a number of sales are lost from closure of Black Rock Lava Flow, Easy Chair Crater and the Lunar Crater National Landmark.

The crater near Silverpeak is closed to mineral material sales which causes an adverse impact on meeting local demand for cinders and the number of mineral material sales.

IMPACTS TO ECONOMIC CONDITIONS

From livestock grazing management:

No changes in the administration of grazing on public lands would be introduced. The livestock grazing program would continue to be guided by previous planning documents. The initial stocking level of 162,766 AUMs has been determined on the basis of previous land use plans together with adjustments based on evaluation of monitoring data.

No significant economic impacts to the livestock grazing industry, or to the local economies, is expected. However, individual ranch operators may suffer some reduction in AUMs should the proposed disposal of 22,234 acres of agricultural entry land, and the 50,040 acres identified for discretionary disposal be accomplished. It is estimated that up to 3600 AUMs could be lost reducing net ranch income by approximately $19,000. This could impact severely on individual ranch operations.

From lands and rights-of-way:

Land disposals would not result in significant economic impacts. Expressions of interest for transfer of public lands to other ownership (other than the 50,040 acres identified for disposal) would continue to be considered on an individual basis. It is expected that the present pattern of land ownership within the

RMP area would remain substantially the same. The potential for economic development, or the possibility of realizing benefits that might derive from more efficient use of the land would be diminished. Property tax revenues to the counties, and BLM Payments In Lieu Of Taxes, would not be substantially altered.

From utility corridors:

This alternative would result in continued high up-front right-of-way planning costs to utility companies in the RMP area. Long time frames for processing a major right-of-way would continue. However, once future rights-of-way were obtained, construction and operations costs could be low compared to other alternatives since the entire area would be potentially available. This would provide the greatest opportunities for shorter rights-of-way which provide lower construction costs and minimized operating costs, including maintenance and power loss. In addition, this alternative would provide for a high level of utility system reliability since it provides the greatest potential for maximizing the distance between current and future transmission lines.

This alternative would result in a decrease in the value of private lands near future transmission lines. Since transmission lines often affect the scenery as viewed from adjacent lands, they are perceived as reducing the value of those lands. This would likely be limited to the short term, as there is no clear evidence that long term land values are affected by transmission lines (Holberger et al, 1975)

From mineral exploration and development:

No significant economic impact, either beneficial or adverse, to the minerals industry or to the local economy. Any minerals exploration or development is likely to benefit the regional economy, in terms of income and employment, and minerals development potential under each of the alternatives remains largely unfettered.

The certain stipulations and restrictions that are prescribed, under each of the alternatives provide different levels of constraint for resource protection which are different only in degree. In some cases these constraints moderately increase the costs of exploration and development that may be born by the minerals industry. Leasing restrictions, for instance, have an effect upon oil and gas exploration costs due to the constraints such restrictions impose on scheduling and operating efficiency. No evidence is available to indicate that these additional costs have been sufficiently prohibitive to discourage exploration; and no significantly adverse economic effects would result from such lease conditions.

Any increases or decreases in operating costs, that might result from reasonable and moderate resource protection measures, are not likely to have any effect on an individual operator's decision to undertake exploration in a particular area. Such costs are incidental, not prohibitive, and may be found to exist, in one form or another, in every exploration area. Operator's generally consider such costs to be a normal part of the cost of doing business.

Even in those alternatives which offer the greatest potential for operating economies in exploration, development, and production, such economies are not likely to be of sufficient significance to provide inducement to expanded exploration and development activities.

The major problem underlying the economic evaluation of minerals is the great uncertainty regarding the existence of mineral deposits in sufficient quantity and quality to be commercially feasible. In addition, long-range mineral resource evaluation and market demand estimation are at best speculative. Both mineral resource evaluation and development are directly dependent upon market demands that may be regional, national, or worldwide in scope.

ALTERNATIVE 2

Impacts to Air Resources

From recreation:

Air quality would be degraded by fugitive dust released during off-highway vehicle events. Impacts would be of short duration.

From mineral exploration and development:

Air quality would be degraded during construction and mining activities as a result of vehicular emissions and fugitive dust. State standards for particulates might be exceeded for short time periods on some project sites but should not be exceeded resource area wide. Mitigating measures are applied for dust and emission abatement and reclamation is designed to restore the long term productivity of the resources.

IMPACTS TO WATERSHED

From riparian management:

Improving streambank stability ratings to 70 percent and streambank cover ratings to 70 percent on 13.5 miles of stream would reduce streambank erosion and decrease sedimentation. Improved water quality and watershed conditions would result on 42 percent of the streams shown on Table 3 C.

From livestock grazing management:

The implementation of grazing management would increase ground cover and reduce erosion rates.

Rangeland improvements, such as fences and water developments, destroy small amounts of vegetative cover during construction. This activity would increase soil erosion on approximately 1,025 acres in the short term and 167 acres would remain denuded in the long term.

Vegetative manipulation projects on 38,760 acres would increase soil erosion during and shortly thereafter as the areas are treated. Two years after reseeding, erosion rates would be less than current levels.

From forestry and vegetative products:

Firewood harvesting would destroy vegetation and disturb the soil resulting in a short term increase in erosion. As the understory vegetation is released from competition with overstory trees, ground cover would increase and soil erosion would be reduced in the long term.

From mineral exploration and development:

Waters found in oil and/or gas producing formations are part of a closed system and will not impact the general ground water of the region. The oil and gas industry must comply with standards to ensure reinjection of produced waters does not degrade ground water aquifers.

There would be a short term loss of soil cover and subsequent increase in erosion potential. Soil compaction would occur wherever vehicular use is concentrated. Most long term impacts would be reduced or eliminated by minimizing disturbed areas, using best available construction techniques, and by mitigating disturbance through soil stabilization and revegetation.

Long term impacts would occur on 3,900 acres of open pit mines which would not be reclaimed.

IMPACTS TO VEGETATION

From vegetation management:

Management of the vegetation which provides for the physiological needs of the key plant species would have a positive impact on vegetation in the long term. Plants which are particularly desirable to livestock, wild horses and burros, and wildlife would be permitted to produce and store adequate amounts of food energy to sustain themselves. In addition,

they would be permitted to produce seed for the production of new plants.

From forestry and vegetative products:

Firewood harvesting of both green and dead wood would have a negative impact on vegetation in the short term. These impacts would involve the destruction of live trees and the crushing and trampling of understory vegetation. However, harvesting overstory piñon/juniper trees releases the understory vegetation from competition with trees. Biological diversity, understory production, and ground cover would increase in the long term. There are 314,123 acres of piñon-juniper woodland in the resource area, about 15,100 acres, five percent of the piñon-juniper woodlands, could be cut during the life of this RMP. Firewood cutting areas are not clearcut because one-third of the trees on these areas are too small for firewood. Harvesting trees would cause minimal impact on pine nut production, since only about five percent of the woodland resource could be harvested during the life of this RMP.

All 231,100 acres which support Joshua tree would be open to harvest. The commercial and non-commercial harvest of Joshua trees would not exceed the sustained yield. There would be little impact on the Joshua tree population, or on adjacent vegetation.

Collection of live desert shrubs would have little effect on vegetation, since the authorizations are discretionary and subject to environmental reviews.

From rangeland improvements:

The largest impact to vegetation from any range improvement project would be from vegetative manipulation. Short term impacts would be a loss of existing vegetative cover and biomass. Once established the seeding itself would mitigate these impacts. The long term effect of seedings would be to diversify vegetation and increase forage production.

The short term impacts of developing wells, pipelines, fences, reservoirs, and springs would be to disturb 1,052 acres of vegetation cover. Because the disturbance would be scattered over a large area, the short term impact would be insignificant. The long term effect of these projects would be to improve distribution and control of livestock which would cause an increase of vegetative biodiversity, production, and ecological status.

From livestock grazing management:

Vegetation conditions would improve as more intensive management is implemented. Short term impacts would be small increases in plant vigor, litter, production, and seedling establishment. Long term impacts include larger increases in plant vigor, litter, production and seedling establishment, plus an increase in biodiversity, ecological status, plant density, palatable shrubs, and cool season grasses. Impacts of grazing to major vegetation types follow.

Salt Desert Shrub The more productive saltbrush ecological sites would respond well to intensive grazing management during wet and normal precipitation years. The less productive sites would change very slowly. Small improvements would occur during wet years. More palatable grasses and shrubs would increase.

Sagebrush Grazing would have little impact on black sagebrush sites. During wet and normal precipitation years Wyoming big sagebrush sites would respond to intensive grazing management. The presence of more palatable bunch grasses would increase as sagebrush decreases.

Piñon-Juniper Woodlands These areas would not be significantly impacted by grazing.

Hot Desert The few productive sites would respond to intensive grazing management.

Alkali Meadows and Bottoms These areas would respond well to intensive grazing management with an increase in palatable grasses.

Mountain Mahogany Due to the inaccessibility of this type, mountain mahogany would not be impacted by grazing use.

Riparian These areas would respond well to improved grazing management with increases in vegetation diversity, density and production.

From wild horses and burros

Grazing by wild horses and burros impacts the major vegetation types in the same way as described for lifestock grazing

From lands and rights of way

Overall agricultural entries would have a small impact on vegetation. Of the 32,154 acres in the resource area available for agricultural entry only seven percent (2,250 acres) would be developed.

From mineral exploration and development:

Mineral exploration and development activities would disturb 36,708.5 acres of vegetation as follows: locatable minerals, 24,650 acres; oil and gas, 944 acres; geothermal, 364.5 acres; non-energy leasing, 7,750 acres; and mineral material sales, 3,000 acres.

Short term impacts from surface disturbing activities are 1) increased soil erosion by wind and water; 2) a small loss of forage and habitat for wildlife, livestock and wild horse and burros; and 3) a visual impact. Reclamation and revegetation should minimize these effects. Long term impacts tend to be mainly visual since disturbed soil supports different vegetation from undisturbed soil.

From fire:

Overall, fire would have a small impact on vegetation since this is rare in the resource area. Prescribed and natural fires on piñon-juniper or big sagebrush vegetation releases beneficial forage plants from the understory. Biological diversity would increase after the initial loss of vegetation. Recovery from fire on salt desert shrub vegetation is slow due to low precipitation and poor soils. Without seeding and protection from grazing, these sites would be dominated in the long term by introduced annuals, such as cheatgrass or halogeton.

IMPACTS TO WILDLIFE HABITAT

From riparian habitat management:

Wildlife would benefit from improved riparian areas and a greater diversity of species would find suitable habitat along the 10 miles of stream. Improved management would improve and the three miles to be maintained in satisfactory condition.

Trout and other aquatic wildlife would benefit from riparian improvement along 9.4 miles of stream which would increase shading of streams lowering temperatures, decrease sediment loads, and improve overall water quality.

From wildlife habitat management:

The development and successful implementation of habitat management plans (HMP) would improve wildlife habitat and allow for increases in wildlife populations in accordance with land-use plan objectives.

Bighorn sheep would benefit from the reintroduction of bighorn sheep into the Hot Creek, Goldfield, Amargosa, Magruder/Palmetto, Monte Cristo, Montezuma, Silver Peak, Sawtooth, Bare Mountain, and Gold Mountain habitat areas. Sheep numbers would be allowed to increase and reach a level consistent with the carrying capacity of the range. This would be a positive impact on bighorn sheep populations.

Mule deer, bighorn sheep, and sage grouse would benefit from the protection provided by seasonal restrictions placed on land use authorizations during critical time periods on important winter ranges, strutting grounds or lambing areas.

Predator control would continue and the value of predators in controlling the rodent and rabbit populations would not be realized.

From forestry and vegetative products:

Mule deer would benefit from firewood sales on 15,100 acres of piñon/juniper woodland. Removal of trees would create openings in the overstory canopy which would provide additional sunlight, moisture, and nutrients for important browse and forage species. Residual piñon/juniper trees would provide adequate thermal and escape cover. The new cutting areas proposed at Kawich, Squaw Wells, and Piper Peak would benefit deer by distributing the cutting more evenly over the mule deer habitat.

From livestock grazing management:

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horse/burro management are made, wildlife habitat is expected to improve.

Antelope, mule deer, and bighorn sheep habitat would improve through the increased availability of important forage plants. No impacts to Rocky Mountain elk would occur.

Sage grouse habitat would continue to be adversely impacted by season-long livestock grazing since wet meadows and stream bottom riparian areas are preferred by both sage grouse for brooding and by livestock.

Since competition for available water is a limiting factor in much of the resource area, wildlife would benefit from the five reservoirs, 25 spring developments, 28 wells, and 41 miles of pipeline to be developed for livestock.

Waterfowl habitats would benefit from the grazing treatments proposed in the Railroad Valley Wildlife Management Area which are designed to periodically remove rank old growth and to stimulate new growth of riparian vegetation.

From wild horses and burros

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horse and burro management are made, wildlife habitat is expected to improve.

From lands and rights-of-way:

Land disposal could have long term negative impacts on wildlife since blocks of land have been identified for discretionary disposal in historical bighorn sheep habitat, deer winter habitat, sage grouse habitat and antelope habitat. All land disposal is discretionary and is preceded by an environmental analysis. This process identifies important resource values such as important wildlife habitat, which should be retained in federal ownership.

The disposal of lands along Chiatovich Creek could have a heavy impact on the wintering deer herd.

Construction of rights-of-way and other authorized activities could result in adverse impacts to deer, bighorn sheep and sage grouse. These impacts would be mitigated by seasonal restrictions placed on construction and other disturbing activities on 51,920 acres of mule deer, bighorn sheep and sage grouse seasonal habitats.

Adverse impacts to bighorn sheep could result from access roads developed for utility rights-of-way or communication sites on Lone Mountain, Bare Mountain and in other locations. There would be an increase in the amount of disturbance of sheep populations by humans.

From recreation:

An adverse short term impact to wildlife could occur due to off-highway vehicle events in critical habitats or during such critical periods as birthing or rearing of young. High speed competitive events could increase the potential for harassment of bighorn sheep and other

wildlife when events pass by critical waters. Spectators could also damage habitat and add to the harassment of wildlife. These impacts would be reduced by the implementation of seasonal restrictions on 51,920 acres of mule deer, bighorn sheep and sage grouse habitat.

From utility corridors:

Rights-of-way authorized in utility corridors would adversely impact wildlife habitat. Proposed corridors would traverse 428 miles of antelope habitat, 40 miles of mule deer habitat, and border 16 miles of bighorn sheep habitat. The greatest impact would be associated with the construction of major pipelines or electric transmission lines which would be short term. The long term impacts would result from new or improved roads providing increased access and human intrusion in formally undisturbed habitat.

From mineral exploration and development:

Adverse impacts to wildlife could result from mineral exploration and development activities which include loss and degradation of habitat, harassment, and a proliferation of roads which fragment the habitat. These impacts would be reduced through seasonal restrictions on mineral leasing on 51,290 acres of important wildlife habitat and withdrawal from mineral entry on 3,120 acres of the Railroad Valley Wildlife Management Area.

The opening of 13,160 acres of important wildlife habitat (deer winter range, bighorn sheep lambing grounds, and sage grouse habitat) to mineral leasing with a seasonal restriction to protect wildlife during critical periods would minimize animal harassment, but not protect the habitat. Since most of these habitats are in areas of low potential for fluid minerals (except for 2,080 acres of deer winter range on Carver Bench which is an area with moderate potential for geothermal resources), the seasonal restrictions should provide adequate long term protection.

Waterfowl would be adversely impacted in the long term by replacing a no surface occupancy restriction on 3,640 acres and allowing mineral leasing with a seasonal restriction, on waterfowl habitat in Railroad Valley. The waterfowl would not nest and rear broods if the habitat has been degraded by the destruction of vegetative cover and fragmented by a proliferation of exploration and development activity.

The opening of 11,590 acres to mineral location in the Railroad Valley Wildlife Management Area would not significantly impact wildlife since the lands being opened are mostly playas with little value as wildlife habitat and have a low potential for locatable minerals.

IMPACTS TO SPECIAL STATUS SPECIES

From livestock grazing management:

Grazing by livestock and wild burros could have an adverse impact on the Amargosa toad. Grazing by wild burros and livestock along the Amargosa River and nearby springs would continue to remove vegetation which could provide cover for the toad and habitat for insects upon which the Amargosa toad feeds. Continued excessive grazing use would destroy riparian habitat along the Amargosa River which also provides habitat for the Oasis Valley speckled dace.

The population of Railroad Valley springfish would be maintained or enhanced by the continued protection of North Spring, Reynolds Spring and the refugium at Chimney Spring through the exclusion of livestock. Periodic use by livestock would prevent riparian vegetative growth from encroaching into open water which degrades springfish habitat.

Desert tortoise populations would be maintained. Implementation of the grazing restrictions from the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada* on would ensure tortoise recruitment is sufficient to maintain established population on 70,600 acres of Non-Intensive Category III desert tortoise habitat.

From lands and rights-of-way:

Approximately 30,000 acres of Non-Intensive Category III desert tortoise habitat would be identified for discretionary disposal. Important habitat for the Amargosa toad and Oasis Valley speckled dace (55 acres) would also be identified for discretionary disposal. Disposal of these lands would have an adverse impact. However, all land disposal actions are discretionary and are preceded by an environmental analysis. This process would identify any sensitive, threatened or endangered species habitat and provide for mitigation and/or avoidance of possible adverse impacts. All Federal actions which might impact a threatened or endangered species would be evaluated by the USFWS under provisions of Section 7 of the Endangered species Act.

The Railroad Valley springfish would benefit from the right-of-way exclusion which would prevent future authorized uses on 15 acres of its habitat.

From recreation:

There would be negative impacts to desert tortoise habitat, Amargosa toad habitat and Oasis Valley speckled dace habitat from casual off-highway vehicle use. Off-highway vehicle use could result in direct mortality of individual animals and cause a proliferation of trails which destroys and fragments habitat. Desert tortoise surveys conducted prior to off-highway vehicle events would ensure that tortoise would not be run over during the event. All Federal actions which might impact a threatened or endangered species would be evaluated by the USFWS under the provisions of Section 7 of the Endangered Species Act.

Amargosa toad and Oasis Valley speckled dace habitat would be protected from indiscriminate off-highway vehicle use by the limiting of off-highway vehicle use to existing roads on 490 acres of the Amargosa River drainage.

From mineral exploration and development:

Requirements listed under Section 7 of the Endangered Species Act would prevent any serious impacts to the listed or candidate T&E species in the resource area.

Approximately 24,000 acres of Non-Intensive Category III desert tortoise habitat are located within an area of high potential for locatable minerals. The remaining 46,600 acres is in an area of moderate potential. Although the desert tortoise is at the northern extremity of its range and the population is low, there is the potential for a small number of tortoise to be killed by mining activity and for habitat to be lost. Exploration activities would result in short term negative impacts to the tortoise. The term of development activities would be dependent on the life of the mine.

Potential impacts to the Railroad Valley springfish from fluid mineral development would be mitigated by a no surface occupancy restriction on mineral leasing on 80 acres in an area of high potential for oil and gas, and moderate potential for geothermal resources. Adverse impacts from locatable mineral exploration and development are not anticipated since the mineral potential is low.

Long term adverse impacts to Amargosa toad and Oasis Valley speckled dace habitat would continue because their habitat lies within areas delineated as having high or moderate potential for locatable minerals. Mining of this area would result in mortality and loss of habitat.

IMPACTS TO RIPARIAN HABITAT

From riparian habitat management:

There are 2,235 acres excluded from livestock in the Railroad Valley Wildlife Management Area. A total of 40 acres are expected to improve from fair to good, and the rest, 2,195 acres would be maintained in good condition.

From livestock grazing management:

As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horses and burros are made, riparian habitat is expected to improve in the long term. The impact of grazing on riparian habitat depends on the accessibility of the area, the number of grazing animals in the area and the period and duration of use. The lack of water and sparse vegetation on much of the resource area causes livestock and to a lesser extent wild horses and burros to concentrate on the riparian habitat for water, forage and shade. Season-long grazing takes place in most allotments in the resource area. The impact on riparian vegetation is continuous over use which reduces stream flow, water quality, increases erosion and invasion of undesirable vegetation. Riparian areas would respond well to improved grazing management with increases in vegetation diversity, density, and production in the long term.

Range improvements would provide additional water, forage, and control facilities to reduce grazing impact on riparian areas. There are 23 springs proposed for development which would have the spring sources protected from the adverse impacts of utilization by livestock and wild horses and burros. This would provide for some improvement of aquatic habitat conditions through reduced erosion, improved water quality, increased ground water recharge, more stabilized streambanks, more productive habitat, more diverse stream channels and increase species diversity. However, most existing spring developments would not exclude livestock and wild horses and burros, significant grazing impact on spring sources and associated riparian zones would continue.

From lands and rights-of-way:

Riparian habitat could be adversely impacted since eight miles of streamside riparian areas would be identified for discretionary disposal. However, all land disposal is discretionary and preceded by an environmental analysis. This process identifies important resource values which should be retained in federal ownership.

From recreation management:

Limiting off-highway vehicles to existing roads and trails would protect 4,150 acres of riparian areas in Railroad Valley and riparian corridors along the Amargosa River.

From mineral exploration and development:

Of the 32.8 miles of streamside riparian identified on Table 3 C, 29 percent are in areas of high potential, 31 percent in areas of moderate potential and 40 percent in areas of low potential for locatable minerals. Mineral exploration and development could adversely impact riparian zones.

There are an estimated 4,154 acres of riparian areas in Railroad Valley, all of which would be protected by withdrawal from mineral entry. Also 3,720 acres would be protected from oil and gas development by a no surface occupancy stipulation.

IMPACTS TO FORESTRY AND VEGETATIVE PRODUCTS

From forestry and vegetative products:

No adverse impacts would occur to the woodland resource from the harvest of the woodland products. The present level of harvest is within the sustained yield on the available woodland acres. The demand for firewood has averaged 675 cords for the past three years. The sustained yield on the 41,300 acres of operable woodlands, including lands in WSAs, is approximately 1,500 cords per year. The 15,100 acres identified as greenwood cutting areas represent 37 percent of the operable woodland base and provide adequate volume to last for the life of the plan. It is anticipated that future demand would increase until the sustained yield of 1,500 cords a year is reached. The greenwood cutting areas would reforest naturally in a short period of time since the smaller trees are not cut for firewood. In the short term, harvest in the Lida area would be heavy while

other areas are light. In the long term, the harvest of firewood could be increased and more evenly distributed throughout the resource area, if and when wilderness study areas are released by Congress for multiple use purposes.

From mineral exploration and development:

Mineral exploration and development could have a positive impact on woodland management. The development of roads and trails in stands of piñon/juniper resulting from mineral exploration would improve the access to woodland products and help to more evenly distribute the harvest of firewood and other vegetative products.

Negative impacts would be minor since reasonably foreseeable development scenarios for all mineral programs anticipate that less than one percent of the resource area would have surface disturbance due to mineral location and development.

IMPACTS TO LIVESTOCK GRAZING MANAGEMENT

From vegetation management:

Managing for the physiological needs of the key forage species would have a variable impact on grazing management. The impacts could range from none to either a positive or negative based principally on the existing level of management and current stocking rates. If livestock numbers are reduced to ensure that the needs of the identified key forage plants are met, a negative impact on livestock operations would result. In the long term, as resource conditions improve, the impacts on livestock operations could be reduced or totally eliminated through restoration of the initial reductions.

From wildlife habitat management:

The 9,127 acres of critical deer winter range closed to grazing at Morey Bench and Toiyabe Bench has had a minor negative impact on grazing management within these areas. As habitat conditions within these areas improve, and other conditions stipulated in existing plans are met, the periodic use of these areas by livestock could have a positive impact through increased management options.

The adjustment of livestock grazing use based on monitoring of wildlife habitat management objectives would have a negative impact on livestock numbers in the short term. However, as resource conditions improve the carrying capacity for all herbivores, including livestock would increase.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat within portions of two allotments. Should use exceed the levels specified in the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada* would have to remove all livestock from this habitat. However, the impact on these operations would be minimal as there is grazing land available in both allotments outside of tortoise habitat to which livestock could be moved.

Critical habitat for the Railroad Valley springfish has been excluded from livestock grazing where it occurs on public lands. A total of 124 acres of springfish habitat would continue to be excluded from livestock.

From riparian habitat management:

There are an estimated 2,317 acres of riparian areas within the Railroad Valley Wildlife Management Area excluded from grazing. No adverse impacts to grazing management are associated with this action. In the long term, there might be some positive impacts as livestock are used to remove encroaching riparian vegetation.

Riparian areas would not be fenced along 12 miles of stream to allow increased opportunities for grazing management to attain riparian objectives. Continued failure to meet the objectives would result in a need to reduce livestock numbers in an attempt to reduce use within riparian areas.

From wild horse and burro management:

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing for wild horse and burro population levels, as determined from the findings of the monitoring and evaluation program, could require a reduction in livestock numbers to provide habitat for wild horses and burros and for other resource values.

Livestock would receive a long term benefit from waters developed for wild horses and burros.

From cultural resource management:

The impacts of cultural resource management on livestock grazing management would be minimal. Normally, to protect cultural sites, proposed livestock management facilities would either be relocated or rerouted to protect these sites.

From lands and rights-of-way:

A total of 363,000 acres would be available for discretionary disposal. This is six percent of the total available grazing lands in the resource area. Only the Francisco and Smoky Allotments could be impacted significantly. The Francisco Allotment would be virtually eliminated if all identified lands are transferred, while approximately one half of the Smoky Allotment would become private. This would have significant negative impacts on five permittees and their current grazing privileges.

From mineral exploration and development:

Areas disturbed by mineral exploration and development would be reclaimed. Therefore, long term or significant impacts to forage production are not anticipated. Short term negative impacts would result from the temporary loss of 1,308 acres of available grazing lands through oil, gas, and geothermal exploration and development. This would not be considered significant when viewed in relation to the total acreage available. In addition, short term negative impacts would result from the temporary loss of 24,650 acres of available grazing lands due to the exploration and development of locatable minerals within the resource area. Short term negative impacts would also result from the temporary loss of available grazing lands to the sale of mineral materials. Based upon the projected development of mineral materials, 3,000 acres of available grazing lands would be temporarily lost to livestock operators throughout the resource area. This acreage represents one-half of one percent of the total acreage open to grazing within the resource area.

From fire:

Both positive and negative impacts to grazing management can result from fire. Negative impacts result from a short term loss of forage disruption of existing management systems and possible closure to grazing for revegetation of the burn site. A long term negative impact could occur if the burned area is invaded by unpalatable plants such as rabbitbrush or halogeton, thus effectively reducing forage production. Positive impacts can result from fire by reducing the density of tree and brush species and releasing more desirable forage. Since naturally occurring fire is infrequent (only 1,947 acres burned between 1980 and 1990) impacts would be insignificant. The use of prescribed fire for vegetative manipulation on approximately 36,400 acres would result in long term positive impacts to forage availability and increased management options.

IMPACTS TO WILD HORSES & BURROS

From wildlife habitat management:

Wildlife proposals to support Habitat Management Plans, such as big game guzzlers and reintroduction of bighorn sheep, could result in wildlife populations expanding into areas currently utilized by wild horses and burros. Expanding usable wildlife habitat and allowing mule deer, antelope, and bighorn sheep to increase and reach levels consistent with the carrying capacity could result in competition between wild horses and burros

and wildlife. If inter-specific competition becomes evident through the monitoring and evaluation program, a long term impact might occur if wild horses and burros were reduced.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat in the Bullfrog HMA (more than 45 percent of the HMA). Should use by burros exceed the levels specified in the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada*, the burro population would be reduced. These long term impacts could be significant.

Over use by burros on important Amargosa toad habitat could also result in a long term negative impact to burro populations if reductions are necessary.

From forestry and vegetative products:

The greenwood cutting areas at Silver Peak, Piper Peak, Montezuma, Bellhelen, and Kawich (a total of 6,200 acres within the HMAs) would have minimal adverse impact on wild horses and burros. There could be some stress caused by human intrusions during actual cutting. The long term effect would be a more open area with better visibility, and the potential for more grasses and forbs.

From livestock grazing management:

Wild horses and burros would be beneficially impacted through grazing management and resulting improved range conditions.

Range improvement projects could beneficially impact wild horses and burros by establishing more dependable supplies of water and better distribution of animals in the HMAs.

Proposed fencing along U.S. Highway 6 through Stone Cabin HMA would have an adverse impact on wild horses. The fence would divide the Stone Cabin HMA into two separate use areas and result in a long term restriction on travel patterns.

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing for livestock in HMAs, as determined from the findings of the monitoring and evaluation program, could require a reduction in wild horse/burro numbers to provide forage for livestock.

From wild horse and burro management:

Removal of wild horses and burros on a 5-year cycle would have a short term adverse impact on wild horses and burros by reducing their population sizes to a point from which it would take five years to again reach initial management levels. This action would have a positive impact on the wild horses and burros left on the range. Fewer animals would mean less competition for forage, water, shelter, and space. Herd condition could potentially improve and reproductive rates could increase.

The application for water rights and/or assertion of public water reserves on certain waters within the HMAs could positively impact the wild horses and burros by guaranteeing Federal water rights in the long term. This would allow improvements to be made on existing important water sources which would result in improved water flow and reliability of the water supply.

From lands and rights-of-way:

A total of 66,000 acres of land within HMAs would be available for discretionary disposal; 23,000 acres in Bullfrog HMA, 10,000 acres in Fish Lake Valley HMA, 11,000 acres in Goldfield HMA, 11,000 acres in Montezuma HMA, 1,000 acres in Palmetto HMA, and 10,000 acres in Stone Cabin HMA. However, all land disposal is discretionary and is preceded by an environmental analysis to identify resource values to remain in federal ownership.

Lands disposed of within the boundaries of a HMA area could not be replaced by lands outside the boundaries. The loss of territory has the potential of causing long term adverse impacts to wild horses and burros by reducing

their forage, water, shelter, and space. The lack of any of these requirements could potentially force wild horses and burros to move outside the boundaries of the herd area which could result in the removal of the animals from the range. In addition, long term conflicts with private landowners within the HMAs could result.

From recreation:

Wild horses in the Paymaster/Lone Mountain HMA would be protected from some of the adverse impacts of off-highway vehicle use by limiting vehicle use to existing roads and trails on 14,400 acres, but the rest of the HMAs would remain open to unrestricted vehicle use. Short term negative impacts on wild horses and burros could result from the crushing of forage plants. Also, short term adverse impacts may be caused by off-highway vehicles harassing wild horses and burros, and driving them away from water sources.

From mineral exploration and development:

The potential for locatable minerals is high on 17 percent of the acreage inside HMAs and moderate on 38 percent. The exploration and development of mineral resources could impact wild horses and burros. In the short term this activity could drive animals away from the waters and forage. If these activities last for an extended period of time the normal grazing and watering practices could be permanently modified. Wild horses and burros would either adapt to the disturbance or move to other locations. Most disturbed areas would be reclaimed which in the long term would make these reclaimed lands again available to wild horses and burros.

IMPACTS TO CULTURAL RESOURCES/PALEONTOLOGICAL RESOURCES

From forestry and vegetative products:

Opening piñon/juniper to firewood harvest on 15,100 acres has the potential for significantly impacting 364 cultural sites, and the traditional values of local Native American populations who rely on the piñon nut harvest for a portion of their sustenance. Long term impacts from firewood harvest include: damage to cultural features, horizontal and vertical displacement of artifacts resulting from trees, equipment, and vehicles being dragged or driven over sites, and increases in illegal excavation and collection activities as a result of improved access.

Closure of the Baxter Springs greenwood cutting area would result in decreased disturbance to an undetermined number of sites.

From livestock grazing management:

Rangeland improvements would affect 39,785 acres. Vegetation manipulation efforts are anticipated to occur on approximately 38,760 acres. Efforts to manipulate vegetation through manual, mechanical, and chemical methods, or prescribed burns, could result in significant damage to cultural properties and might affect traditional values. Manual and mechanical methods could alter or destroy the spatial context of artifacts and features. Prescribed burns might cause the destruction of perishable artifacts near the ground surface, heat spalling on rock art panels can alter artifacts so that some dating techniques are no longer usable. Some chemical techniques might preclude later use of Carbon-14 dating. Effects from continued and increased use of 38,760 acres by cattle include horizontal and vertical displacement of artifacts, damage to artifacts and features, destruction of sites during construction of rangeland improvements, and surface disturbance associated with vehicles used by permittees. An estimated 1,431 sites might be affected by activities associated with rangeland improvement.

Livestock would continue to be excluded from 11,444 acres. Protection from disturbance associated with rangeland improvements and grazing would be afforded to 412 cultural resource sites estimated to be present on this acreage. Several riparian zones are included in these exclusions, which should enhance the probability for site protection as riparian

environments are highly sensitive locations for cultural resources.

From cultural resource management:

Emphasis would be placed on developing proactive aspects of the cultural resources program. ARPA surveillance points would be established in a number of locations, and ARPA law enforcement and monitoring plans would be written for a minimum of nine sites/districts. Activity plans would be written for approximately seventeen sites/districts over the life of the plan. A Class I overview would be prepared for the resource area to help guide management decisions. These actions would result in long term positive impacts to cultural resources.

Interim management directions for archaeological districts in northern Railroad Valley would result in decreased impact to sites/features by restricting fluid minerals development and prohibiting discretionary surface disturbing activities in the Trap Springs/Gravel Bar area, and by redesigning range improvements to eliminate grazing in the vicinity of springs in the Stormy-Abel district. These restrictions would remain in place until such time as a comprehensive research protocol could be developed and implemented for these cultural properties.

A comprehensive research protocol and data recovery program would be developed for the Trap Springs, Gravel Bar, and Stormy-Abel prehistoric districts. Data recovery at these localities would benefit the scientific community, but would result in partial destruction of the sites through controlled excavation. Eventual release of the Trap Springs and Gravel Bar districts for fluid minerals development could be expected to result in destruction of the remainder of these sites. Relaxation of proposed interim rangeland development restrictions in the vicinity of Storm, Coyote, and Abel springs would result in continued degradation of sites and features in this prehistoric district.

A total of 170 acres containing four known archaeological and historic sites would be opened to mineral leasing with a no surface occupancy stipulation. It is estimated that a minimum of two additional sites might be included within this acreage. Berlin Town Site (704 acres) would benefit through continued closure to mineral entry. No new areas would be withdrawn from mineral entry specifically to protect cultural resources. Vehicles would be restricted to existing roads and trails at Tybo (20 acres) and McIntyre (60 acres) charcoal kilns, resulting in added long term protection for these cultural resources and an estimated minimum of two additional cultural properties.

From lands and rights-of-way:

A total of 363,000 acres of land have been identified for discretionary disposal in this alternative. Disposal of public land and ensuing construction activities might result in complete destruction of cultural properties. Disposal of land for agricultural purposes might result in partial or complete destruction of sites as a result of field preparation methods. Land disposals might also increase access into areas resulting in a rise in illegal excavation and collection activities. It is estimated that 6,509 cultural properties might be present in areas proposed for disposal. Land disposal actions are discretionary and would not be done if unacceptable impacts to cultural resources would be the result.

From recreation:

A total of 5,984,821 acres would remain open and unrestricted to off-highway vehicle use. An estimated 144,425 sites might be present within this area. Impacts from off-highway vehicle use include partial or total destruction of features and sites as a direct result of driving across them, destruction of sites and features as a result of increased erosion associated with changes in vegetation/ground cover, and a rise in illegal excavation and collection activities associated with increased access into previously undisturbed areas. During competitive events, sites located in pit areas and along raceways might be partially or wholly disturbed, and collection of surface artifacts by spectators could be expected. Restricting off-highway vehicle use to existing

roads, trails, and washes, on a seasonal basis, or by type of user on 106,280 acres might afford some slight degree of protection to approximately 2565 sites. In this instance, direct impacts of off-highway vehicle use, would be confined to areas of existing disturbance, but a rise in illegal excavation and collection activities resulting from increased access to previously inaccessible areas would be expected.

The designation of 26,510 acres as Special Recreation Management Areas (SRMAs) at Clayton Valley Sand Dunes, Crescent Sand Dunes, the Lunar Crater Volcanic Field, and the Railroad Valley Wildlife Management Area, could result in increased protection for an estimated 639 sites owing to the more intensive management these areas would receive. However, management strategies focused on increasing visitation to SRMAs could result in an overall negative effect on cultural properties. Regular surveillance and monitoring associated management of SRMAs would have a beneficial impact by discouraging destructive activities.

Designation and development of Back-Country Byways in the Emigrant Pass, and Lunar Crater Volcanic Field areas would result in increased visitation. With an increase in the number of visitors, a rise in incidents of vandalism, illegal excavation and collection of an undetermined number of sites could be expected.

From utility corridors:

The designation of 668 miles of utility corridors would not directly impact cultural resources. However, impacts to an undetermined number of cultural resources would result if one or more major power lines were constructed within these corridors. Because each corridor is three miles wide, impacts directly associated with construction would be minimal as relocation of towers and access roads could be adjusted to avoid cultural properties. However, construction of service roads within utility corridors would increase access into previously inaccessible areas, leading to a rise in incidents of vandalism, illegal collection, and excavation.

From mineral exploration and development:

Impacts to cultural resources from fluid mineral leasing and geophysical exploration include destruction of some sites during construction of well pads, access roads, and other facilities. Furthermore, damage to sites from erosion in areas where vegetation has been altered or destroyed (sites in sand dunes are particularly vulnerable to this type of impact) could be expected. Other possible impacts include destruction of or alterations in the character of artifacts and features from accidental spills of petroleum products and/or other substances thereby precluding some kinds of analysis such as Carbon-14 dating and blood residue studies. Vandalism and illegal excavation and collection also seem to be associated with increased access.

It is projected that a total of 944 acres would be directly impacted as a result of well pad, access road, and facility construction. There might be 32 sites within this area. A total of 3,240 acres would be closed to fluid mineral leasing and geophysical exploration, and no surface occupancy associated with these activities would be allowed on an additional 2,720 acres. An estimated 202 cultural resources might be afforded some protection from impacts related to fluid mineral exploitation as a result of these restrictions.

Impacts from locatable mineral development include partial or complete destruction of cultural properties resulting from exploration, increased erosion, mine development, and construction of mills and other facilities. Cultural properties might also be buried under mountains of waste rock while visible features are more likely to be illegally collected and excavated. Historic mining sites (e.g., townsites, isolated homesites, mills, adits, and trash dumps) are particularly vulnerable because much mineral development occurs within historic mining districts. Prehistoric quarry sites are often found in areas of heavy mineralization, so are also subject to intense impact from mineral development. An estimated total of 24,650 acres would be developed as a part of the locatable minerals program. This has the potential for adversely

affecting an estimated 538 sites. A total of 11,993 acres would be withdrawn from mineral entry. This would afford some protection to approximately 246 sites.

Impacts associated with mineral materials development include partial or complete destruction of cultural properties and paleontological localities. Ont thousand acres are projected for mineral materials development, potentially affecting 24 cultural properties. About 5,960 acres would be closed to the sale of mineral materials. This would eliminate impacts from this source at an estimated 144 sites.

Impacts to cultural resources from development of non-energy leasable minerals include complete or partial destruction of sites associated with construction of access roads, evaporation ponds, and other facilities, erosion or burial of sites and features in locations where vegetation has been disturbed or removed, and a rise in the number of incidents of vandalism, and illegal excavation and collection as a result of increased access. Cultural properties situated in valley bottoms and along valley margins or old lake shores are particularly vulnerable. An estimated 7,750 acres would be developed for non-energy leasable minerals. This could affect an estimated 187 cultural properties. In this alternative, 5,960 acres would be closed to non-energy mineral leasing, which would eliminate impacts from this source to an estimated 144 sites.

IMPACTS TO THE LANDS AND RIGHTS-OF-WAY PROGRAMS

From wildlife habitat management:

Actions proposed for wildlife habitat management would result in the creation of 51,920 acres of right-of-way avoidance areas for the protection of deer winter range, sage grouse habitat, and bighorn sheep lambing areas. If rights-of-way or other discretionary lands actions are allowed within these areas, the authorizing documents would include seasonal restrictions for their protection. These areas are quite remote and no interest has yet been expressed in land use authorizations within them. If such an interest were to be expressed, it is doubtful that the imposition of seasonal restrictions would cause any great hardship. Therefore, the creation of these avoidance areas would have no impact on the Lands and Rights-of-Way Programs.

From special status species management:

The actions proposed for the management of the Railroad Valley springfish and its critical habitat would result in the creation of a 15 acre right-of-way exclusion area. Because of the small size of the exclusion area, its creation would have no effect on the Lands and Rights-of-way Programs.

From cultural resource management:

Within Rhyolite, lands could be disposed of only under the Recreation and Public Purposes Act. The Small Tract classification on the four acre parcel on which the Bottle House is situated would be terminated, and the land would be reclassified for R&PP. This would have a beneficial impact on the Lands and Rights-of-Way Program because it would transfer management of Rhyolite to a non-profit entity or perhaps to the State or local government. It would also eliminate the threat that this historic treasure might be exploited by profiteers.

The Gravel Bar Road within the Trap Springs Gravel Bar would continue to be closed. This has a negative impact on the Lands and Rights-of-Way Program because the use of this road would make it simpler and safer for crude oil trucks coming from the Grant Canyon Field to get to the Petro Source Refinery.

No land disposals would be allowed within Trap Springs Gravel Bar except for the 40 acre parcel on which the Petro Source Refinery is now situated. This would be beneficial to the Lands and Rights-of-Way Program. The complexity of operations at the refinery has rendered the site difficult and uneconomic to manage.

From lands and rights-of-way:

A total of 363,000 acres would be identified for discretionary disposal under the sale and exchange authorities and under the Recreation and Public Purposes Act. This includes 32,154 acres to be made available for disposal under the agricultural land laws. it is not expected that the entire 363,000 acres would be disposed of during the life of the plan; the identification of a large an acreage for disposal would give management an opportunity to be responsive to current and future needs. This would have a positive impact on the Lands and Rights-of-Way Program.

In addition to the 9,042 acres already classified as suitable for agricultural entry, 23,112 additional acres would be considered for classification. This allows for a greater acreage to be considered for agricultural entry than any of the other alternatives. The processing of agricultural entry cases has a significant impact on the Lands workload. The failure rate for agricultural entries is also significant. If the original entrant or the entrant's assignee fails to prove up under the agricultural land laws on the 32,154 acres which might be classified as suitable for agricultural entry, the land would no longer be available for disposal under the agricultural land laws but would be available for disposal under the sale and exchange authorities. This would have a positive impact on the Lands and Rights-of-Way Program because it would allow for prompt and cost effective disposal.

A total of 71,820 acres would be included in right-of-way avoidance areas for the support of other resource programs. If rights-of-way or other discretionary lands actions were to be allowed within these areas, seasonal restrictions or stipulations for the protection of special resource values would be included in the authorizing documents. This would have a negligible effect on the Lands and Rights-of-Way Programs.

A total of 15 acres would be included in right-of-way exclusion areas for the support of other resource programs. No rights-of-way or other discretionary lands actions would be allowed within these small areas. This would have a negligible effect on the Lands and Rights-of-Way Programs.

All other lands within the resource area would be open for consideration for rights-of-way, leases, and land use permits unless there were a conflict with other resource values that could not be resolved. This would give the Lands and Rights-of-Way Program greater freedom to be responsive to a wider range of public demands than under any of the other alternatives.

No new withdrawals would be proposed leaving the greatest acreage available for a wide range of uses and would therefore have a positive impact on the Lands and Rights-of-Way Programs.

From ACECs:

The Lunar Crater National Natural Landmark would be designated as an ACEC. This designation would create a 2,560 acre right-of-way avoidance area to protect geologic and scenic values. Because of the remoteness of this proposed avoidance area and the lack of demand for rights-of-way or other discretionary lands actions within it, its creation would have little or no impact on the Lands and Rights-of-Way Programs.

Lone Mountain would be designated as an ACEC. This designation would create a 14,400 acre right-of-way avoidance area. If rights-of-way or other discretionary lands actions were to be allowed within this area, the authorizing documents would include stipulations for the protection of the area's special values. No serious interest in land use authorizations within this area has been expressed over the past ten years. There would be no impact to the Lands or Rights-of-Way Programs.

From mineral exploration and development:

much of the land identified for disposal under the sale and exchange authorities is encumbered with mining claims and could not

be disposed of unless those claims are extinguished.

IMPACTS TO UTILITY CORRIDORS

From lands and rights-of-way:

Some of the lands identified for disposal at Berlin, Carver's, Tonopah, Nyala, Blair, Coaldale, Silverpeak, Goldfield, Scotty's Junction, Springdale, and Beatty are included within the proposed utility corridors. This might lead to conflicts as these lands are transferred into private ownership. Private landowners might object to corridors near their property and might resist granting easements for commodity transportation and utility transmission facilities. However, not all of the land identified for disposal would actually be conveyed into private ownership.

From ACECs:

Lone Mountain would be designated as an ACEC. This would marginally conflict with the proposed corridor along US Highway 6.

From utility corridors:

A right-of-way grant is required for the placement of any facilities within a designated corridor. The designation of corridors does not mean that future rights-of-way are restricted to corridors, nor does it mean that there is a commitment by BLM to approve all rights-of-way applications within corridors. An inventory for cultural resources and an environmental assessment or an environmental impact statement are required prior to the granting of a right-of-way within a designated corridor.

The utility corridor designations proposed would have a beneficial impact on the Lands and Rights-of-Way Program.

IMPACTS TO RECREATION RESOURCES

From watershed:

Competitive off-highway vehicle events would no longer be limited to existing roads and trails on 803,846 acres of fragile soils. While this action would reduce restrictions on competitive events, it would have little beneficial impact on off-highway vehicle events because existing roads and trails are utilized. Site specific conflicts which might arise when new actions are proposed are handled on an individual basis in the environmental analysis process.

From visual resource management:

Managing the five scenic highways listed in the current *Esmeralda-Southern Nye RMP* to retain visual values might limit where and how competitive events cross these highways. This occurs on an individual basis as applications for competitive events are received.

Management of the Lunar Crater SRMA would be enhanced by the restrictions that only actions which do not impact the scenic quality of the SRMA (2,560 acres) would be authorized.

From wildlife habitat management:

The seasonal restrictions on competitive events between January 15 and May 1 would have no impact because the areas restricted are easily avoided.

From special status species management:

Even though no specific use restrictions would be established, impacts to competitive off-highway vehicle events, such as restricted routes and seasons-of-use, could occur, particularly within desert tortoise habitat, as case-by-case analysis of the environmental impacts are completed. While it is possible that every event could be impacted, the magnitude of this impact is uncertain because the number of applications which would be submitted is unpredictable.

From riparian habitat management:

Improvement on 13.5 miles of riparian habitat would benefit recreation resources by improving trout habitat and increasing fishing opportunities. An improved mix of recreational opportunities for the public would result.

From forestry and vegetative products:

Establishment of greenwood cutting areas could lead to the loss of semi-primitive recreation opportunities on 2,000 acres through the establishment of new roads and trails.

From cultural resources management:

Management of cultural resources would have no impact on recreation resources. Conflicts between cultural resources values and proposed recreation activities such as competitive off-highway vehicle events would be mitigated through the environmental and Section 106 processes on an individual basis.

From lands and rights-of-way:

Disposal of 363,000 acres would have little impact on recreation resources. Most of the lands which would be available for discretionary disposal are located in the rural or roaded natural opportunity settings closely associated with towns, ranches, and agriculturally developed and altered areas.

Reduction of the Railroad Valley Wildlife Area withdrawal from 14,710 to 2,940 acres would open 11,770 acres to mineral development. Because this area is actually four small separated pieces, the potential for the loss of wildlife habitat and the associated recreational opportunities due to mineral development is high. Opening this area to mineral development would negate the beneficial impact of limiting vehicle use to existing roads and trails because of the small size of the area.

From ACECs:

Concurrent management of the 2,560 acre Lunar Crater National Natural Landmark as an ACEC with no surface occupancy for mineral leasing and a closure to discretionary uses would benefit management of the area as an SRMA. This would provide less protection than the area receives under current management.

Designation of the 14,400 acre Lone Mountain ACEC and limiting vehicle use to existing roads and trails within it would have no impact on recreation resources. The area is very rugged and contains only a few rough jeep trails.

From recreation:

Limiting vehicle use in the Lunar Crater Volcanic Field SRMA and Railroad Valley Wildlife Management Area to existing roads and trails would not impact SRMA management and might be of benefit in enhancing recreational activities by retaining naturalness.

Managing 98 percent of the resource area as open to unrestricted vehicle use would lead to a loss of settings for both primitive and semi-primitive opportunity.

From WSAs:

Interim management of WSAs requires limiting vehicle use to existing roads and trails on 634,815 acres. This is an interim action pending final Congressional resolution of the wilderness designation issue. The interim restriction could remain in place for many years but would cease to apply when lands are released from wilderness study status by Congress. WSA lands designated as wilderness would be closed to all motorized and mechanical uses.

From utility corridors:

Proposed utility corridors would not impact the four SRMAs designated.

From mineral exploration and development:

Exploration for fluid minerals could result in the loss of visual quality of Lunar Crater through the building of roads and drill pads. Development of fluid minerals would add impacts associated with well heads, pipelines, and storage tanks. Development of minerals within the Railroad Valley WMA lands opened to mineral entry could lead to a loss of riparian habitat, wildlife, and recreation opportunities. Mineral exploration roads would result in the downgrading to the next lower Recreational Opportunity Spectrum (ROS) on primitive and semi-primitive non-motorized lands. All lands offering primitive settings could be impacted.

IMPACTS TO FLUID MINERALS

From wildlife habitat management:

Seasonal restrictions on 28,920 acres of deer winter forage would positively impact fluid minerals by leasing land previously closed. This acreage is located in low potential areas. It is estimated that one oil and gas well and one geothermal well would be drilled in this seasonally restricted area. Drilling of these wells would have to be scheduled to avoid conflicts.

Seasonal restrictions on sage grouse habitat results in positive impacts from the opening of 5,600 acres to leasing.

A potential adverse impact would occur from having seasonal restrictions on 1,280 acres of bighorn sheep habitat which are currently closed to mineral leasing. This area is in a high potential oil and gas area. The leasing of this land could result in an oil field being developed with a potential of five million barrels of oil recovery. A seasonal restriction on fluid minerals development would apply to that land for the life of the plan. If an oil or geothermal field is discovered in an area of seasonal restriction that field would have to go to a maintenance status during the restricted season.

From riparian habitat management:

The reduction of lands on which no surface occupancy would be permitted in Railroad Valley from 3,960 acres to 80 acres would be a positive impact since vertical drilling could be completed to evaluate the acreage. A seasonal restriction against surface occupance on 3,640 acres would allow for exploration in areas previously affected by a year-around restriction. While the scheduling of drilling would be required, the area would be available for exploration.

From special status species management:

A total of 80 acres in Railroad Valley springfish habitat would have a restriction against surface occupancy, which means the area would be available to exploration only through directional drilling.

From ACECs:

The reduction in restrictions closed to surface occupancy at Lunar Crater, from 30,080 acres to 2,560 acres, would encourage additional lands to be leased.

From cultural resource management:

Mountain View Arrastra (40 acres), Tybo Charcoal Kilns (20 acres), Moores Station Petroglyphs (10 acres), and Jumbled Rock Petroglyphs (10 acres) would be opened to leasing with a stipulation against surface occupancy. This would be a positive impact on the fluid minerals program since the areas are currently closed.

From fluid minerals management

The exploration and development of fluid minerals would be restricted by other programs. These restrictions are summarized in Table 4 A.

TABLE 4 A
AVAILABILITY OF LANDS FOR FLUID MINERAL LEASING
RELATIVE TO RESOURCE POTENTIAL

MANAGEMENT CATEGORIES	LOW POTENTIAL ACRES	MODERATE POTENTIAL ACRES	HIGH POTENTIAL ACRES	UNKNOWN POTENTIAL ACRES	TOTAL ACRES
OPEN SUBJECT TO STANDARD TERMS AND CONDITION	364,640	1,262,400	523,340	3,879,737	6,030,117
OPEN WITH MAJOR RESTRICTIONS (NO SURFACE OCCUPANCY)	160	0	2,560	0	2,720
OPEN WITH MINOR RESTRICTIONS (SEASONAL RESTRICTIONS)	12,760	16,000	0	26,240	55,000
CLOSED TO LEASING (DISCRETIONARY)	0	0	0	0	0
CLOSED TO LEASING (NONDISCRETIONARY) [1]	0	2,560	0	704	3,264

[1] Assumes that lands in WSA status would be returned to multiple use.

IMPACTS TO LOCATABLE MINERALS

From wildlife habitat management:

Off site mitigation would be a cost incurred by larger mining companies if a prescribed acreage of wildlife habitat is disturbed (see Appendix 4).

From riparian habitat management:

Reduction of the withdrawn lands from 14,819 acres to 3,129 acres in Railroad Valley is a positive impact upon the locatable industry. This reduction would allow areas currently withdrawn to be explored and could produce brine type deposits.

From ACECs:

Designation as an ACEC at Lunar Crater and Lone Mountain would require all exploration in the ACEC to be done under a Plan of Operation with mandatory bonding. It is estimated that two operations yearly could be expected to be impacted.

From cultural resources management:

Four acres having high mineral potential are currently classified not open to mineral entry at Rhyolite. This acreage is removed from exploration and development. Although limited in size, this withdrawal could make development of the mineral resource around Rhyolite difficult.

From lands and rights-of-way:

The withdrawal of the Gold Point townsite would adversely affect the current claimants by requiring them to prove discovery under the mining law. The resulting examination would allow BLM resolve status of the land. Each

withdrawal reduces the land base for exploration, development and mining.

IMPACTS TO MINERAL MATERIAL

From visual resource management:

Opening of the Black Rock Lava Flow to mineral material sales would have positive impact on mineral material sales.

Lunar Crater National Natural Landmark (2,560 acres), would remain closed to material sales.

From wildlife habitat management:

The seasonal restriction on 28,920 acres of deer habitat would preclude the disposal of material from January 15 to May 1. This restriction would delay use of the material for road maintenance by the County or BLM.

The seasonal restriction on 12,000 acres of sage grouse habitat would preclude the disposal of material from February 1-May 1. This restriction would delay use of the material for road maintenance by the BLM or County. Alternative material sites requiring a greater haul distance and higher operating cost might be available.

From cultural resource management:

Cane Man Hill would be removed from the land base from which to sell common variety mineral material. This location is known to contain basalt boulders which are potentially valuable. It is estimated that one potential sale would be lost during the life of the plan if an acceptable alternative site could not be found.

IMPACTS TO NON-ENERGY LEASABLE MINERALS

From wildlife habitat management:

Areas in Railroad Valley closed to mineral leasing or with no surface occupany restrictions could not be explored for solid leasable commodities.

IMPACTS TO ECONOMIC CONDITIONS

From livestock grazing management:

No changes in the administration of grazing on public lands would be introduced. The livestock grazing program would continue to be guided by previous planning documents. The initial stocking level of 162,766 AUMs was determined on the basis of previous land use plans together with adjustments based on evaluation of monitoring data.

Of the total 363,920 acres of public land identified for potential disposal, 289,726 acres are currently available grazing lands, representing approximately 14,500 AUMs. The total loss of the forage provided by this acreage would have a significantly adverse economic impact on the livestock industry in the area. It would render severe economic hardship on up to five ranch operators. Gross income to the livestock industry would be reduced by about six percent, or $300,000; and ranch operators would suffer a loss in net ranch income estimated at $76,125.

While this relatively small economic impact would have no significant effect on the regional economy, ranch operators who may be affected would confront new constraints in their operating discretion, and would be forced to consider reductions in herd size or the purchase of hay or private grazing to offset the loss of public land forage. Ranchers who are unable to adjust their operations in this manner may be forced to consider going out of business due to the added costs.

It should be noted that the lands proposed for disposal are identified as such to facilitate any potential transfer or disposal action that might come about in response to an identified public need. It is considered unlikely that the full 363,920 acres identified would be successfully transferred to private or local government ownership, or that there would be a specific purpose or useful and productive application for all these lands.

Therefore, the estimation of potential effects on ranch operations represents only a "worst

case'' scenario. The degree to which ranch operations are actually affected would depend on which particular parcel, and how much acreage, was sought by private or public entities for change of use. The economic impacts which might result from potential land transfer proposals cannot be determined at this time.

From lands and rights-of-way:

This alternative identifies a total of 363,000 acres of public lands for discretionary disposal to private or local government ownership. Changes within the land ownership pattern may occur which could alter the county property tax base to a significant degree. Federal Payments In Lieu Of Taxes (PILT) would be adjusted upward.

In some cases, local governments could suffer adverse financial effects from the transfer of these lands to private ownership, should the tax revenue fall short of the cost of providing any necessary public services. The provision of these services to new areas is likely to require greater capital outlay, and to be less cost efficient, than those contained within existing communities.

From utility corridors:

The establishment of corridors in this alternative would result in some reduction of right-of-way planning costs to utility companies, because the procedures for right-of-way approval are simplified within designated corridors. However, flexibility in future right-of-way location is limited within designated corridors. Thus it is possible that transmission lines could be longer, possibly resulting in more frequent power outages and greater operating costs. In addition, utility system reliability might be affected because designated corridors provide limited opportunity for the physical separation of transmission lines.

Minor reductions in the value of private lands along future transmission lines could occur. With appropriate corridors designated well in advance, future development plans could incorporate appropriate considerations. Because transmission lines affect the visual aspect of adjacent lands, they are perceived as reducing the value of these lands. Such effects on land values would likely be limited to the short term, as there is no clear evidence that long term land values are affected by transmission lines (Holberger, et al, 1975).

From mineral exploration and development:

No significant economic impact, either beneficial or adverse, to the minerals industry or to the local economy. Any minerals exploration or development is likely to benefit the regional economy, in terms of income and employment. Minerals development potential under each of the alternatives remains largely unfettered.

The certain stipulations and restrictions that are prescribed under each of the alternatives provide different levels of constraint for resource protection which are different only in degree. In some cases these constraints moderately increase the costs of exploration and development that may be born by the minerals industry. Leasing restrictions, for instance, have an effect upon oil and gas exploration costs due to the constraints such restrictions impose on scheduling and operating efficiency. No evidence is available to indicate that these additional costs have been sufficiently prohibitive to discourage exploration; and no significantly adverse economic effects would result from such lease conditions.

Any increases or decreases in operating costs, that might result from reasonable and moderate resource protection measures, are not likely to have any effect on an individual operator's decision to undertake exploration in a particular area. Such costs are incidental, not prohibitive, and inherent in every exploration area. Operators generally consider them as a cost of doing business.

Even in those alternatives which offer the greatest potential for operating economies in exploration, development, and production, such economies are not likely sufficient to

provide inducement to expanded exploration and development activities.

The major problem underlying the economic evaluation of minerals is the great uncertainty regarding the existence of mineral deposits in sufficient quantity and quality to be commercially feasible. In addition, long-range mineral resource evaluation and market demand estimation are at best speculative. Both mineral resource evaluation and development are directly dependent upon market demands that may be regional, national, or worldwide in scope.

ALTERNATIVE 3

IMPACTS TO AIR RESOURCES

From recreation:

Air quality would be degraded by fugitive dust released during off-highway vehicle events. Impacts would be of short duration.

From mineral exploration and development:

Air quality would be degraded during construction and mining activities as a result of vehicular emissions and fugitive dust. State standards for particulates may be exceeded for short time periods on some project sites but should not be exceeded resource area wide. Mitigating measures are applied for dust and emission abatement. Reclamation is designed to restore the long term productivity of the resources.

IMPACTS TO WATERSHED

From riparian management:

Streambank ratings would be maintained or improved to 70 percent streambank stability ratings and 70 percent streambank cover ratings. Sedimentation would be reduced on 32.8 miles of the streams shown on Table 3 C.

From forestry and vegetative products:

Firewood harvesting would destroy vegetation and disturb the soil resulting in a short term increase in erosion. As the understory vegetation is released from competition with overstory trees, ground cover would increase and soil erosion would be reduced in the long term.

From livestock grazing management:

The implementation of grazing management would increase ground cover and reduce erosion rates.

Rangeland improvements, such as fences and water developments, destroy small amounts of vegetative cover during construction. This activity would increase soil erosion on approximately 1,025 acres in the short term and 167 acres would remain denuded in the long term.

Vegetative manipulation projects on 38,760 acres would increase soil erosion during and shortly there after as areas are treated. Two years after reseeding, erosion rates would be less than current levels.

From mineral exploration and development:

Waters found in oil and/or gas producing formations are part of a closed system and will not impact the general ground water of the region. The oil and gas industry must comply with standards to ensure reinjection of produced waters does not degrade ground water aquifers.

There would be a short term loss of soil cover and subsequent increase in erosion potential. Soil compaction would occur wherever vehicular use is concentrated. Most long term impacts would be reduced or eliminated by minimizing disturbed areas, using best available construction techniques, and by mitigating disturbance through soil stabilization and revegetation.

Long term impacts would occur on 3,900 acres of open pit mines which would not be reclaimed.

IMPACTS TO VEGETATION

From vegetation management:

Managing for desired plant community would provide for a balanced production of forage for wildlife, livestock, wild horses and burros and for watershed protection. In the short term these improvements generally occur on the more productive sites first with less productive sites showing slower progress. Long term impacts are increased biological diversity, biomass, cover, ecological status and production, and a decrease in erosion.

From forestry and vegetative products:

Firewood harvesting of both green and dead wood would have a negative impact on vegetation in the short term. These impacts would involve the destruction of live trees and the crushing and trampling of understory vegetation. However, harvesting overstory piñon/juniper trees releases the understory vegetation from competition with trees. Biological diversity, understory production, and ground cover would increase in the long term. There are 314,123 acres of piñon-juniper woodland in the resource area, about 10,300 acres, three percent of the piñon-juniper woodlands, could be cut during the life of this RMP. Firewood cutting areas are not clearcut because one-third of the trees on these areas are too small for firewood. Harvesting trees would cause minimal impact on pine nut production, since only about three percent of the woodland resource could be harvested during the life of this RMP.

Of the 231,000 acres which support Joshua trees, 131,000 acres would be open to harvest. Non-commercial Joshua tree harvest would not exceed the sustained yield. There would be little impact on the Joshua tree population or on adjacent vegetation.

Collection of live desert shrubs would have little effect on vegetation, since the authorizations are discretionary and subject to environmental reviews.

From rangeland improvements:

The largest impact to vegetation from any range improvement project would be from vegetative manipulation. Short term impacts would be a loss of existing vegetative cover and biomass. Once established the seeding itself would mitigate these impacts. The long term effect of seedings would be to diversify vegetation and increase forage production.

The short term impacts of developing wells, pipelines, fences, reservoirs, and springs would be to disturb 1,052 acres of vegetation cover. Because the disturbance would be scattered over a large area, the short term impact would be insignificant. The long term effect of these projects would be to improve distribution and control of livestock which would cause an increase of vegetative biodiversity, production, and ecological status.

From livestock grazing management:

Vegetation conditions would improve as more intensive management is implemented. Short term impacts would be small increases in plant vigor, litter, production, and seedling establishment. Long term impacts include larger increases in plant vigor, litter, production and seedling establishment, plus an increase in biodiversity, ecological status, plant density, palatable shrubs, and cool season grasses. Impacts of grazing to major vegetation types follow.

Salt Desert Shrub The more productive saltbrush ecological sites would respond well to intensive grazing management during wet and normal precipitation years. The less productive sites would change very slowly. Small improvements would occur during wet years. More palatable grasses and shrubs would increase.

Sagebrush Grazing would have little impact on black sagebrush sites. During wet and normal precipitation years Wyoming big sagebrush sites would respond to intensive

grazing management. The presence of more palatable bunch grasses would increase as sagebrush decreases.

Piñon-Juniper Woodlands These areas would not be significantly impacted by grazing.

Hot Desert The few productive sites would respond to intensive grazing management.

Alkali Meadows and Bottoms These areas would respond well to intensive grazing management with an increase in palatable grasses.

Mountain Mahogany Due to the inaccessibility of this type mountain mahogany would not be impacted by grazing use.

Riparian areas would respond well to improved grazing management with increases in vegetation diversity, density and production.

From wild horses and burros

Grazing by wild horses and burros impacts the major vegetation types in the same way as described for lifestock grazing

From lands and rights of way

Overall agricultural entries would have a small impact on vegetation. Of the 9,042 acres in the resource area available for agricultural entry only seven percent (633 acres) would be developed.

From mineral exploration and development:

Mineral exploration and development activities would disturb 36,708.5 acres of vegetation as follows: locatable minerals, 24,650 acres; oil and gas, 944 acres; geothermal, 364.5 acres; non-energy leasing, 7,750 acres; and mineral material sales, 3,000 acres.

Short term impacts from surface disturbing activities are 1) increased soil erosion by wind and water; 2) a small loss of forage and habitat for wildlife, livestock and wild horse and burros; and 3) a visual impact. Reclamation and revegetation should minimize these effects. Long term impacts tend to be mainly visual since disturbed soil supports different vegetation from undisturbed soil.

From fire:

Overall, fire would have a small impact on vegetation since fire is rare in the resource area. Prescribed and natural fires on piñon-juniper or big sagebrush vegetation releases beneficial forage plants from the understory. Biological diversity would increase after the initial loss of vegetation. Recovery from fire on salt desert shrub vegetation is slow due to low precipitation and poor soils. Without seeding and protection from grazing, these sites would be dominated in the long term by introduced annuals, such as cheatgrass or halogeton.

IMPACTS TO WILDLIFE HABITAT

From wildlife habitat management:

The development and successful implementation of habitat management plans (HMP) would improve wildlife habitat and allow for increases in wildlife populations in accordance with land-use plan objectives.

Bighorn sheep would benefit from the reintroduction of bighorn sheep into the Hot Creek, Goldfield, Amargosa, Magruder/Palmetto, Monte Cristo, Montezuma, Silver Peak, Sawtooth, Bare Mountain, and Gold Mountain habitat areas. Sheep numbers would be allowed to increase and reach a level consistent with the carrying capacity of the range. This would be a positive impact on bighorn sheep populations.

Mule deer, bighorn sheep, and sage grouse would benefit from the protection provided by right-of-way avoidance areas and seasonal restrictions placed on land use authorizations during critical time periods on important winter ranges, strutting grounds or lambing areas.

Targeting animal damage control at offending animals only would benefit the predator population in the short term since non-offending animals would not be killed. This could result in increased predation on game and non-game animals.

From riparian habitat management:

Wildlife would benefit from improved riparian areas and a greater diversity of species would find suitable habitat along 32 miles of stream.

Trout and other aquatic wildlife would benefit from riparian improvement along 9.4 miles of stream. Improved management would increase shading of streams lowering temperatures, decrease sediment loads, and improve overall water quality.

From forestry and vegetative products:

Mule deer would benefit from firewood sales on 10,300 acres of piñon/juniper woodland. Removal of trees would create openings in the overstory canopy which would provide additional sunlight, moisture, and nutrients for important browse and forage species. Residual piñon/juniper trees would provide adequate thermal and escape cover.

From livestock grazing management:

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horse/burro management are made, wildlife habitat is expected to improve.

Antelope, mule deer, and bighorn sheep habitat would improve through the increased availability of important forage plants. No impacts to Rocky Mountain elk would occur.

Wet meadows and stream bottom riparian areas are preferred by sage grouse for brooding areas and are also preferred by livestock who remove brood cover. Sage grouse habitat would improve with better grazing management in wet meadows and stream bottom riparian areas. Adverse impacts may occur in the long term if exclusion were required to improve riparian areas and rank stands of grasses and grass like plants displace forbs and succulent new growth. Sage grouse habitat could benefit from grazing management designed to increase forbs in meadow areas.

Since competition for available water is a limiting factor in much of the resource area, wildlife would benefit from the five reservoirs, 25 spring developments, 28 wells, and 41 miles of pipeline to be developed for livestock.

Certain waterfowl and riparian habitats would become rank with old growth riparian vegetation and waterfowl use would decrease in the Railroad Valley ACEC as livestock are excluded from 13,130 acres.

From wild horses and burros

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horse and burro management are made, wildlife habitat is expected to improve.

From lands and rights-of-way:

Land disposal could have long term negative impacts on wildlife since blocks of land have been identified for discretionary disposal in historical bighorn sheep habitat, deer winter habitat, sage grouse habitat and antelope habitat. All land disposal is discretionary and is preceded by an environmental analysis. This process identifies important resource values such as important wildlife habitat, which should be retained in federal ownership.

Adverse impacts to deer, bighorn sheep and sage grouse could result from disturbance during critical periods from construction of rights-of-way and other authorized activities. These impacts are mitigated by avoiding land use authorizations which are not compatible with or benefit wildlife on 23,320 acres of mule deer, bighorn sheep or sage grouse

habitat. In addition there are 50,400 acres of seasonal restrictions on land use authorizations which would protect mule deer, bighorn sheep or sage grouse during critical periods on important habitats.

On 324,000 acres bighorn sheep would benefit by the avoidance of any land uses which are not compatible with bighorn and the exclusion of new communication sites.

Fisheries habitat would benefit from the acquisition of Fish Lake and the pond at Moores Station.

From recreation:

An adverse short term impact to wildlife could occur due to off-highway vehicle events in critical habitats or during such critical periods as birthing or rearing of young. High speed competitive events could increase the potential for harassment of bighorn sheep and other wildlife when events pass by critical waters. Spectators could also damage habitat and add to the harassment of wildlife.

Beneficial long term impacts would result by 23,320 acres of important mule deer, bighorn sheep, and sage grouse habitat being closed to off-highway vehicle events. Additional beneficial effects would result from seasonal restrictions on 52,920 acres to protect mule deer, bighorn sheep, and sage grouse on seasonal ranges.

Bighorn sheep would also benefit from the closure to vehicle use and withdrawal from mineral entry on areas within bighorn sheep habitat which are classified as primitive or semi-primitive non-motorized. Much of the rest of the bighorn sheep habitat would benefit from the semi-primitive motorized areas classification which would designate these areas as closed to off-highway vehicle events. In addition, 1,440 acres of lambing grounds and 5,800 acres around Specie Spring are closed to competitive events.

Trout habitat could benefit from the closure of 9.4 miles of trout stream to the adverse impacts of off-highway vehicle use.

From utility corridors:

Proposed corridors would traverse 388 miles of antelope habitat, 10 miles of mule deer habitat and border 16 miles of bighorn sheep habitat. None of the utility corridors would impact wildlife habitats of high value and therefore impacts should be minimal. The greatest impact would be associated with the construction of major pipelines or electric transmission lines which would be short term. The long term impacts would result from new or improved roads providing increased access and human intrusion in formally undisturbed habitat.

From mineral exploration and development:

Adverse impacts to wildlife could result from mineral exploration and development activities which include loss and degradation of habitat, harassment, and a proliferation of roads which fragment the habitat. These impacts would be reduced through continued closure to mineral leasing of 21,880 acres of habitat important to mule deer and sage grouse and through no surface occupancy restrictions on 3,960 acres of riparian habitat, and through seasonal restrictions on 50,400 acres of mule deer, bighorn sheep and sage grouse habitat.

Bighorn sheep lambing grounds would also be protected by withdrawal from mineral entry on 1,440 acres of land at Stonewall Falls and Little Meadows where there is a high potential for locatable minerals. Other bighorn sheep habitat would benefit from withdrawal from mineral entry to protect primitive and semi-primitive non-motorized values.

Long term benefits might occur if under-utilized wildlife habitats were developed through appropriate off-site mitigation measures to replace habitats destroyed by mining activities.

IMPACTS TO SPECIAL STATUS SPECIES

From livestock grazing management:

The population of Railroad Valley springfish would be maintained or enhanced by the continued protection of North Spring, Reynolds Spring, and the refugium at Chimney Spring through the exclusion of livestock. Periodic use by livestock would prevent riparian vegetation from encroaching in to water which degrades springfish habitat.

Desert tortoise populations would be maintained. Implementation of the grazing restrictions from the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada* would ensure tortoise recruitment is sufficient to maintain a stable population on 70,600 acres of Non-Intensive Category III desert tortoise habitat.

From lands and rights-of-way:

Approximately 10,300 acres of Non-Intensive Category III desert tortoise habitat would be identified for discretionary disposal. Disposal of these lands would have a significant adverse impact. However, since all land disposal actions are discretionary and are preceded by an environmental analysis, this process would identify any sensitive, threatened, or endangered species habitat and provide for mitigation and/or avoidance of possible adverse impacts. All Federal actions which might impact a threatened or endangered species would be evaluated under provisions of Section 7 of the Endangered Species Act.

From ACECs:

Amargosa toad and Oasis Valley speckled dace habitat would benefit from the actions proposed in the designation of the Amargosa-Oasis ACEC. Livestock and wild burros would be restricted from 490 acres which would protect riparian vegetation from grazing and improve water quality. Occasional grazing would control the encroachment of riparian vegetation into open water needed by the tadpoles and dace. Habitat conditions would also be beneficially affected by protection from off-highway vehicle use. Adjacent private lands supporting toad and dace habitat could be acquired which would result in improved management of additional habitat. All mining operations proposed within the ACEC would require a plan of operations which would protect the ACEC's values through the development of appropriate mitigation measures. Withdrawal of the area from mineral entry would prevent expansion of mineral rights in the habitat area. Land use authorizations would be limited to those which are compatible with the management of the area.

The Railroad Valley springfish would benefit in the short term and the long term from the actions proposed in the designation of the Railroad Valley ACEC. Land use authorizations which could adversely impact the springfish would not be allowed on 80 acres of surrounding habitat. The springs containing the springfish would continue to be protected from livestock. Adjacent private lands contain springfish habitat and are identified for possible acquisition which would add to the habitat managed for their benefit. The adverse impacts of mineral exploration and development would be avoided by a withdrawal from mineral entry and a no surface occupancy stipulation on oil and gas and geothermal resources. Potential adverse impacts from off-highway vehicle use would be avoided by limiting vehicles to roads and trails.

From recreation management:

In the long term off-highway vehicle use could result in direct mortality of desert tortoise and cause a proliferation of trails destroying and fragmenting habitat. Desert tortoise would benefit from the limiting of vehicle use to existing roads and trails and the protection of washes in tortoise habitat. Desert tortoise surveys conducted prior to off-highway vehicle events would ensure that tortoise would not be run over during the event.

Amargosa toad and Oasis Valley speckled dace habitat would benefit from the limitation of vehicle use to existing roads and trails on 490 acres.

All Federal actions which might impact a threatened or endangered species would continue to be submitted to the USFWS for Section 7 consultation, as required by law.

From mineral exploration and development:

Requirements listed under Section 7 of the Endangered Species Act would prevent any serious impacts to the listed or candidate T&E species in the resource area.

Approximately 24,000 acres of Non-Intensive Category III desert tortoise habitat are located within an area of high potential for locatable minerals. The remaining 46,600 acres is in an area of moderate potential. Although the desert tortoise is at the northern extremity of its range and the population is low, there is the potential for a small number of tortoise to be killed by mining activity and for habitat to be lost. Exploration activities would result in short term negative impacts to the tortoise. The term of development activities would be dependent on the life of the mine.

IMPACTS TO RIPARIAN HABITAT

From riparian habitat management:

There are an estimated 2,235 acres of riparian area excluded from livestock in the Railroad Valley Wildlife Management Area. A total of 40 acres are expected to improve from fair to good and the rest, 2,195 acres would be maintained in good condition.

Riparian conditions would improve in the long term (see Table 3 C). Three and one-half miles of stream in satisfactory condition (Troy Creek, Deep Creek, Moores Creek, and Perry Aiken Creek) would remain so. Another 6.5 miles with an improving trend (Pine Creek, Eden Creek, and Jefferson Creek) would continue to improve. On six miles of stream (Hunts Canyon Creek, Barley Creek, Corcoran Creek, Little Meadow Creek, and Clear Creek) where the streambank stability and streambank cover ratings are both less than 50 percent, progress would be made through fencing and exclusion of livestock and wild horses. For the 10.3 miles of stream in unsatisfactory condition where the trend has not been determined, conditions would also improve.

From livestock grazing management:

As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horses and burros are made, riparian habitat is expected to improve in the long term. The impact of grazing on riparian habitat depends on the accessibility of the area, the number of grazing animals in the area and the period and duration of use. The lack of water and sparse vegetation on much of the resource area causes livestock and to a lesser extent wild horses and burros to concentrate on the riparian habitat for water, forage and shade. Under current management, season-long grazing takes place in most allotments in the resource area. The impact on riparian vegetation is continuous over use which reduces stream flow, water quality, increases erosion and invasion of undesirable vegetation. Riparian areas would respond well to improved grazing management with increases in vegetation diversity, density, and production in the long term.

Range improvements would provide additional water, forage, and control facilities to reduce grazing impact on riparian areas. There are 23 springs proposed for development which would have the spring sources protected from the adverse impacts of utilization by livestock and wild horses and burros. This would provide for some improvement of aquatic habitat conditions through reduced erosion, improved water quality, increased ground water recharge, more stabilized streambanks, more productive habitat, more diverse stream channels and increase species diversity. However, most existing spring developments would not exclude livestock and wild horses and burros, and significant grazing impacts of

spring sources and associated riparian zones would continue.

From lands and rights-of-way:

Riparian habitat would benefit since approximately six miles of streamside riparian areas within blocks of land identified previously for discretionary disposal would be retained. All land disposal is discretionary and is preceded by an environmental analysis. This process identifies important resource values which would be retained in federal ownership, such as springs and seeps unless disposal would be in the public interest.

From recreation:

Limiting vehicle use to existing roads and trails in the Railroad Valley ACEC would protect an estimated 4,154 acres of riparian area. In the Amargosa-Oasis ACEC, two miles of streamside riparian and nine springs would also be protected. The vehicle closure along 8.5 miles of stream would protect 800 acres of riparian habitat from adverse impacts.

From mineral exploration and development:

Of the 32.8 miles of streamside riparian identified on Table 3 C, 29 percent are in areas of high potential, 31 percent in areas of moderate potential for locatable minerals. Mineral exploration and development could adversely impact riparian zones.

The Amargosa-Oasis ACEC would be withdrawn from mineral entry protecting two miles of streamside riparian and nine springs in areas of moderate and high potential for locatable minerals. Riparian areas, including springs and seeps, would be given protection by the standard terms and conditions applied to leasable minerals.

Riparian habitats would benefit from no surface occupancy stipulations and withdrawal from mineral entry in the Railroad Valley ACEC. The potential for oil and gas is high and the potential for geothermal resources is moderate in the Railroad Valley ACEC. An estimated 3,720 acres of riparian area are protected by a no surface occupancy stipulation. Although the locatable mineral potential is low, the withdrawal for the Railroad Valley ACEC protects an estimated 4,154 acres of riparian area.

IMPACTS TO FORESTRY AND VEGETATIVE PRODUCTS

From forestry and vegetative products:

No adverse impacts would occur to the woodland resource from the harvest of the woodland products. The present level of harvest is within the sustained yield on the available woodland acres. The demand for firewood has averaged 675 cords for the past three years. The sustained yield on the 27,293 acres of operable woodlands is approximately 1,000 cords per year. The 10,300 acres identified as greenwood cutting areas represent 38 percent of the operable woodland base and provide adequate volume to last for the life of the plan. It is anticipated that future demand would increase until the sustained yield of 1,000 cords a year is reached. The greenwood cutting areas would reforest naturally in a short period of time since the smaller trees are not cut for firewood. In the short term, harvest in the Lida area would be heavy while other areas are light.

From recreation:

Adverse impacts to firewood harvest levels result from limiting off-highway vehicle use to existing roads and trails in semi-primitive motorized areas. When and if Congress releases wilderness study areas for multiple use purposes, approximately 13,000 acres of otherwise operable piñon juniper woodlands would not be available due to the off-highway vehicle restrictions on semi-primitive motorized areas.

From mineral exploration and development:

Mineral exploration and development could have a positive impact on woodland management. The development of roads and trails in stands of piñon/juniper resulting from

mineral exploration would improve the access to woodland products and help to more evenly distribute the harvest of firewood and other vegetative products.

Negative impacts would be minor since reasonably foreseeable development scenarios for all mineral programs anticipate that less than one percent of the resource area would have surface disturbance due to mineral location and development.

IMPACTS TO LIVESTOCK GRAZING MANAGEMENT

From vegetation management:

Managing for desired plant community would have a short term negative impact on livestock grazing use where it is determined that a reduction in livestock use were necessary to attain objectives. In the long term, the impact to livestock grazing would be positive where additional forage becomes available and some or all of the initial reductions are restored.

From wildlife habitat management:

The restriction of livestock grazing from 9,127 acres of critical deer winter range closed to grazing at Morey Bench and Toiyabe Bench has had a minor negative impact on grazing management within these areas. As habitat conditions within these areas improve and other conditions stipulated in existing plans are met, the periodic use of these areas by livestock can have a positive impact through increased management options.

The adjustment of livestock grazing use based on monitoring of wildlife habitat management objectives would have a negative impact on livestock numbers in the short term. However, as resource conditions improve the carrying capacity for all herbivores, including livestock would increase.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat within portions of two allotments. Should use exceed the levels specified in the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada*, the lessees would have to remove all livestock from this habitat. However, the impact on these operations would be minimal as there is grazing land available in both allotments outside of tortoise habitat to which livestock could be moved.

Critical habitat for the Railroad Valley springfish has been excluded from livestock grazing where it occurs on public lands. A total of 124 acres of springfish habitat would continue to be excluded from livestock.

The 490 acre Amargosa-Oasis ACEC would be excluded from livestock to protect habitat for the Amargosa toad and Oasis Valley speckled dace. This action would negatively impact livestock grazing management in the long term since these acres contain the more desirable forage for the livestock and supply their primary water sources.

From riparian management:

A total of 229 acres of riparian corridors along six miles of stream would be fenced and excluded from livestock grazing. The net loss of 24 AUMs would result in four allotments. This loss would be less than one percent of the total use and is therefore only a slight impact.

From wild horse and burro management:

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing for wild horse and burro population levels, as determined from the findings of the monitoring and evaluation program, could require a reduction in livestock numbers to provide habitat for wild horses and burros and for other resource values.

From cultural resource management:

The impacts of cultural resource management on livestock grazing management would be minimal. Normally, to protect cultural sites,

proposed livestock management facilities are either relocated or rerouted to protect these sites.

Livestock would be excluded from 480 acres at Storm, Abel and Coyote Hole Springs (160 acres at each spring). However, the exclusion of livestock from these areas would have the same effect as excluding approximately 7,000 acres and 350 AUMs from livestock grazing in the Crater-Black Rock and Nyala Allotments. Three range improvement permits for these springs would also be canceled.

From lands and rights-of-way:

A long term negative impact would occur on grazing management through the potential transfer of 40,662 acres of available grazing lands out of federal ownership. While the transfer would result in reduced grazing capacity on an allotment specific basis, the total potential loss of acreage is less than one percent of the available grazing lands in the entire resource area. The lands are primarily located around populated areas, except in Fish Lake Valley. The impacts to grazing management would be negative in Fish Lake Valley with the transfer of land out of federal ownership affecting four grazing allotments. These impacts would be manifested not only through the loss of forage, but also through allotments being split by private land. Some allotments would be significantly impacted.

From ACECs:

The designation of the Railroad Valley ACEC would result in exclusion of livestock from 13,130 acres. Since most of the riparian areas in the ACEC are currently excluded (2,235 acres), the net loss of AUMs would be 545 AUMs.

From mineral exploration and development:

Areas disturbed by mineral exploration and development would be reclaimed. Therefore, long term or significant impacts to forage production are not anticipated. Short term negative impacts would result from the temporary loss of 1,308 acres of available grazing lands through oil, gas, and geothermal exploration and development. This would not be considered significant when viewed in relation to the total acreage available. In addition, short term negative impacts would result from the temporary loss of 24,560 acres of available grazing lands due to the exploration and development of locatable minerals within the resource area. Short term negative impacts would also result from the temporary loss of available grazing lands to the sale of mineral materials. Based upon the projected development of mineral materials, 3,000 acres of available grazing lands would be temporarily lost to livestock operators throughout the resource area. This acreage represents one-half of one percent of the total acreage open to grazing within the resource area.

From fire:

Both positive and negative impacts to grazing management can result from fire. Negative impacts result from a short term loss of forage disruption of existing management systems and possible closure to grazing for revegetation of the burn site. A long term negative impact could occur if the burned area is invaded by unpalatable plants such as rabbitbrush or halogeton, thus effectively reducing forage production. Positive impacts can result from fire by reducing the density of tree and brush species and releasing more desirable forage. Since naturally occurring fire is infrequent (only 1,947 acres burned between 1980 and 1990) impacts would be insignificant. The use of prescribed fire for vegetative manipulation on approximately 36,400 acres would result in long term positive impacts to forage availability and increased management options.

IMPACTS TO WILD HORSES & BURROS

From wildlife habitat management:

The actions proposed for wildlife habitat management, such as big game guzzlers and reintroduction of bighorn sheep, could result in wildlife populations expanding into areas currently being utilized by wild horses and

burros. This could result in long term competition between wild horses and burros and wildlife for forage and water.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat in the Bullfrog HMA (more than 45 percent of the HMA). Should use by burros exceed the levels specified in the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada*, the burro population would be reduced. These long term impacts could be significant.

There are 490 acres in the Amargosa-Oasis ACEC which would be excluded to protect Amargosa toad and Oasis Valley speckled dace habitat. This action would negatively impact the wild burros in the long term since these acres contain the more desirable forage and supply the primary water sources.

From forestry and vegetative products:

The Silver Peak and Montezuma greenwood cutting areas (a total of 3,400 acres within HMAs) would have minimal adverse impact on wild horses and burros. There could be some stress caused by human intrusion during actual cutting. The long term effect would be a more open area, better visibility, and increased grasses and forbs growing on 3,400 acres.

From livestock grazing management:

Wild horses and burros would be beneficially impacted through improved grazing management and resulting improved range conditions.

Range improvement projects could beneficially impact wild horses and burros by establishing more dependable supplies of water and better distribution of animals in the HMAs.

Proposed fencing along U.S. Highway 6 through Stone Cabin HMA would have an adverse impact on wild horses. The fence would divide the Stone Cabin HMA into two separate use areas and result in a long term restriction on travel patterns.

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing for livestock in HMAs, as determined from the findings of the monitoring and evaluation program, could require a reduction in wild horse/burro numbers to provide forage for livestock.

From wild horse and burro management:

Removal of wild horses and burros on a 3-year cycle would have a short term adverse impact on wild horses and burros by reducing their population sizes to a point from which it would take three years to again reach initial management levels. This action would have a positive impact on the wild horses and burros left on the range. Fewer animals would mean less competition for forage, water, shelter, and space. Herd condition could potentially improve and reproductive rates could increase.

The application for water rights and/or assertion of public water reserves on certain waters within the HMAs could positively impact the wild horses and burros by guaranteeing Federal water rights in the long term. This in turn would allow improvements to be made on existing important water sources which would result in improved water flow and reliability. Protecting lands within 1/2 mile of water sources for the benefit of wild horses and burros will also benefit them.

From cultural resource management:

The proposed fencing of 60 acres around the McIntyre Charcoal Kilns would have no impact on wild horses.

From lands and rights-of-way:

Lands within HMAs would be retained in Federal ownership. This would result in a long term benefit to the wild horses and burros since there would be no net long term loss of lands within HMAs.

From recreation:

Restriction of vehicle use to existing roads and trails within HMAs would be beneficial to the wild horses and burros since contact with motorized vehicles would be minimal.

The designation of primitive or semi-primitive non-motorized status to 82,000 acres within the HMAs would benefit the wild horses and burros since these lands would be closed to off-highway vehicles and mineral leasing and withdrawn from mineral entry.

From mineral exploration and development:

The potential for locatable minerals is high on 17 percent of the acreage inside HMAs and moderate on 38 percent. The exploration and development of mineral resources could impact wild horses and burros. In the short term this activity could drive animals away from the waters and forage. If these activities last for an extended period of time the normal grazing and watering practices could be permanently modified. The wild horses and burros would either adapt to the disturbance or move to other locations. Most disturbed areas would be reclaimed which in the long term would make these reclaimed lands again available to wild horses and burros.

Wild horses and burros would be positively affected by a no surface occupancy stipulation on mineral leasing within one half mile of 87 water sources and by a closure on mineral leasing within one and one half miles of Specie Spring and one mile around Mud Spring. Mud Spring and Specie Spring would also be withdrawn from mineral entry, but the benefits of this protection may not be realized since there are existing claims covering these areas which have valid existing rights to the minerals.

IMPACTS TO CULTURAL RESOURCES/PALEONTOLOGICAL RESOURCES

From forestry and vegetative products:

Opening piñon/juniper to firewood harvest on 15,100 acres has the potential has the potential for significantly impacting 364 cultural sites, and the traditional values of local Native American populations who rely on the piñon harvest for a portion of their sustenance. Long term impacts from firewood harvest include: damage to cultural features, horizontal and vertical displacement of artifacts resulting from trees, equipment, and vehicles being dragged or driven over sites, and increases in illegal excavation and collection activities as a result of improved access.

From livestock grazing management:

Rangeland improvements would affect 39,785 acres. Vegetation manipulation efforts are anticipated to occur on approximately 38,760 acres. Efforts to manipulate vegetation through manual, mechanical, and chemical methods, or prescribed burns, could result in significant damage to cultural properties, and might affect traditional values. Manual and mechanical methods could alter or destroy the spatial context of artifacts and features; prescribed burns might cause the destruction of perishable artifacts near the ground surface, heat spalling on rock art panels, and can alter artifacts so that some dating techniques are no longer usable; and some chemical techniques might preclude later use of Carbon-14 dating. Effects from continued and increased use of 38,785 acres by cattle include horizontal and vertical displacement of artifacts, damage to artifacts and features, destruction of sites during construction of rangeland improvements, and surface disturbance associated with vehicles used by permittees. An estimated 1,431 sites might be affected by activities associated with rangeland improvement.

Livestock would be excluded from 25,809 acres. Protection from disturbance associated with rangeland improvements and grazing would be afforded to 929 cultural resources

estimated to be present on this acreage. A portion of the Stormy-Abel prehistoric district would be protected. Some riparian zones are included in these exclusions. This should enhance the probability for site protection because riparian environments are highly sensitive locations for cultural resources.

Closure of the Baxter Springs greenwood cutting area would result in decreased disturbance to an undetermined number of sites.

From cultural resource management:

Emphasis would be placed on developing proactive aspects of the cultural resources program. ARPA surveillance points would be established in a number of locations, and ARPA law enforcement and monitoring plans would be written for a minimum of nine sites/districts. Activity plans would be written for approximately seventeen sites/districts over the life of the plan. A Class I overview would be prepared for the resource area to help guide management decisions. These actions would result in long term positive impacts to cultural resources.

Interim management directions for archaeological districts in northern Railroad Valley would result in decreased impact to sites/features by restricting fluid minerals development and prohibiting discretionary surface disturbing activities in the Trap Springs/Gravel Bar area, and by eliminating grazing in the vicinity of springs in the Stormy-Abel district. These restrictions would remain in place until such time as a comprehensive research protocol could be developed and implemented for these cultural properties.

A comprehensive research protocol and data recovery program would be developed for the Trap Springs, Gravel Bar, and Stormy-Abel prehistoric districts. Data recovery at these localities would benefit the scientific community, but would result in partial destruction of the sites through controlled excavation. Eventual release of the Trap Springs and Gravel Bar districts for fluid minerals development could be expected to result in destruction of the remainder of these sites.

No surface occupancy would be stipulated for 90 acres surrounding three known archaeological and historic sites not a part of cultural ACECs. It is estimated that a minimum of two additional sites might be protected within this acreage. Berlin Town Site would benefit through continued closure to mineral leasing (704 acres). Withdrawal from mineral entry and restriction of vehicles to existing roads and trails at the Cistern (20 acres), Moores Station Petroglyph (40 acres) and Mountain View Arrastra (40 acres) would result in added protection for two known cultural resources and an estimated minimum of two additional cultural properties. Restriction of vehicle use to designated roads and trails at Cane Man Hill would allow one road to be closed that is encroaching on the site, thereby affording an added degree of protection to the petroglyph panels.

Five cultural ACECs would be designated. The Trap Springs-Gravel Bar ACEC and the Stormy-Abel ACEC were discussed above. The Rhyolite ACEC would consist of the 460 acres of public land within the boundaries of the historic townsite and would serve to protect not only the major ruins within the town, but significant portions of the historic archaeological remains as well. The Cane Man Hill ACEC would consist of 680 acres encompassing the known extent of the petroglyph panels. The Tybo-McIntyre ACEC would consist of four, twenty acre parcels surrounding the known kiln groups. All cultural ACECs would be withdrawn from mineral entry, require a no surface occupancy stipulation for mineral leasing, and vehicle use would be limited. These restrictions should decrease the chance of impacts to sites/features within the ACECs from locatable and fluid minerals development. However, there are existing mining claims on some of these areas which give the claimant a valid existing right to the minerals so that the benefits of withdrawal may not be realized.

From lands and rights-of-way:

A total of 40,662 acres of land have been identified for discretionary disposal in this alternative. Disposal of public land and ensuing construction activities might result in complete destruction of cultural properties. Disposal of land for agricultural purposes might result in partial or complete destruction of sites as a result of field preparation methods. Land disposals might also increase access into areas resulting in a rise in illegal excavation and collection activity. It is estimated that 730 cultural properties might be present in areas proposed for disposal. Land disposal is a discretionary action and lands would not be disposed of if there were an unacceptable impact to cultural resources.

Retention of areas previously identified for disposal in the Rhyolite ACEC (460 acres), in the Amargosa-Oasis ACEC (490 acres), in riparian areas along Perry Aiken and Jefferson creeks (30 acres), within deer winter range along Chiatovich Creek (5,760 acres), and within wild horse and burro herd management areas (11,680) would result in some degree of protection from development for an estimated 445 sites. Acquisition of 645 acres in the vicinity of the Rhyolite ACEC would resolve management problems relating to mixed ownership of the site by bringing the entirety of the townsite under federal control. Acquisition of 320 acres at Moores and Pritchards Stations, 480 acres at Locke's Ranch, 600 acres at Fish Lake, and 280 acres within the Amargosa-Oasis ACEC would place an estimated 30 sites under federal control, providing them some degree of protection from land disturbing activities. Acquisition of Moores and Pritchards Stations might become a burden to the cultural resources program because of the need to stabilize and rehabilitate the structures. However, benefits afforded by developing interpretive facilities and increasing recreation opportunities in these areas might outweigh the cost of stabilization and rehabilitation.

From recreation:

A total of 2,171,755 acres would remain open and unrestricted to off-highway vehicle use. An estimated 52,409 sites might be present within this area. Impacts from off-highway vehicle use include partial or total destruction of features and sites as a direct result of driving across them, destruction of sites and features as a result of increased erosion associated with changes in vegetation/ground cover, and a rise in illegal excavation and collection activities associated with increased access into previously undisturbed areas. During competitive events, sites located in pit areas and along the raceway might be partially or wholly disturbed, and collection of surface artifacts by spectators could be expected. Restricting off-highway vehicle use to existing roads, trails, and washes, on a seasonal basis, or by type of user on 3,485,056 acres might afford some slight degree of protection to approximately 84,101 sites. In this instance, direct impacts of off-highway vehicle use, would be confined to areas of existing disturbance, but a rise in illegal excavation and collection activities resulting from increased access to previously inaccessible areas could be expected. Closure of 430,290 acres to all vehicle uses would provide some protection for approximately 10,384 sites from impacts noted above.

Designation of 64,930 acres as Special Recreation Management Areas (SRMAs) at Clayton Valley Sand Dunes, Crescent Sand Dunes, the Lunar Crater Volcanic Field, Railroad Valley Wildlife Management Area, Rhyolite and Tybo-Mcintyre Charcoal Kilns might result in increased protection for an estimated 1,565 sites owing to the more intensive management these areas would receive. However, management strategies focused on increasing visitation to SRMAs could result in an overall negative effect on cultural properties. If Fish Lake, Moores and Pritchards Stations are acquired and designated SRMAs, two known historic sites and approximately five additional cultural resource sites would be brought under federal control, thereby protecting them from development. However, the net effect on

cultural resources in these areas could be negative due to rises in vandalism, illegal collection, and excavation associated with increased visitation. Regular surveillance and monitoring associated with management of SRMAs would have a beneficial impact by discouraging destructive activities. Designation of an SRMA at Rhyolite would allow for additional signing and development of other interpretive and visitor facilities in conjunction with a local concerned citizens group. Development of interpretive facilities at this site is expected to result in a decrease in vandalism and illegal collection.

Designation and development of Back-Country Byways in the Emigrant Pass, Lunar Crater Volcanic Field, and Morey-Hot Creek areas would result in increased visitation. An increase in the number of visitors could be expected to result in a rise in incidents of vandalism, illegal excavation and collection of an undetermined number of sites.

From utility corridors:

The designation of 500 miles of utility corridors would not directly impact cultural resources. However, impacts to an undetermined number of cultural resources would result if one or more major power lines were constructed within these corridors. Because each corridor is three miles wide, impacts directly associated with construction are expected to be minimal as relocation of towers and access roads could be adjusted to avoid cultural properties. However, construction of service roads within utility corridors would increase access into previously inaccessible areas, leading to a rise in incidents of vandalism, illegal collection, and excavation.

From mineral exploration and development:

Impacts to cultural resources from fluid mineral leasing and geophysical exploration include destruction of some sites during construction of well pads, access roads, and other facilities. Furthermore, damage to sites from erosion in areas where vegetation has been altered or destroyed (sites in sand dunes are particularly vulnerable to this type of impact) could be expected. Other possible impacts include destruction of or alterations in the character of artifacts and features from accidental spills of petroleum products and/or other substances thereby precluding some kinds of analysis such as Carbon-14 dating and blood residue studies. Vandalism and illegal excavation and collection also seem to be associated with increased access. It is projected that a total of 944 acres would be directly impacted as a result of well pad, access road, and facility construction. There might be 32 sites within this area. A total of 454,700 acres would be closed to fluid mineral leasing and geophysical exploration. No surface occupancy associated with these activities would be allowed on an additional 158,000 acres. An estimated 20,809 cultural resources might be afforded some protection from impacts related to fluid mineral exploitation as a result of these restrictions.

Impacts from locatable mineral development include partial or complete destruction of cultural properties resulting from exploration, increased erosion, mine development, and construction of mills and other facilities. Cultural properties might also be buried under mountains of waste rock while visible features are more likely to be illegally collected and excavated. Historic mining sites (e.g., townsites, isolated homesites, mills, adits, and trash dumps) are particularly vulnerable as much mineral development occurs within historic mining districts. Prehistoric quarry sites are often found in areas of heavy mineralization, and are therefore subject to intense impact from mineral development. An estimated total of 24,650 acres would be developed as a part of the locatable minerals program. This has the potential for adversely affecting an estimated 538 sites. A total of 547,139 acres would be proposed for withdrawal. This would afford some protection to approximately 11,971 sites.

Impacts associated with mineral materials development include partial or complete destruction of cultural properties and paleontological localities. One thousand acres are projected for mineral materials development. This could affect 24 cultural

properties. A total of 612,700 acres would be closed to sale of mineral materials. This would eliminate impacts from this source at an estimated 14,786 sites.

Impacts to cultural resources from development of non-energy leasable minerals include complete or partial destruction of sites associated with construction of access roads, evaporation ponds, and other facilities, erosion or burial of sites and features in locations where vegetation has been disturbed or removed, and a rise in the number of incidents of vandalism, and illegal excavation and collection as a result of increased access. Cultural properties situated in valley bottoms and along valley margins or old lake shores are particularly vulnerable. An estimated 7,750 acres would be developed for non-energy leasable minerals. This could affect an estimated 187 cultural properties. A total of 612,700 acres would be closed to non-energy mineral leasing, which would eliminate impacts from this source to an estimated 14,786 sites.

IMPACTS TO THE LANDS AND RIGHTS-OF-WAY PROGRAMS

From vegetation management:

A total of 3,600 acre would become a right-of-way avoidance area in the Blue Eagle bristlecone pine forest. If rights-of-way or other discretionary lands actions were to be allowed within this area, the authorizing documents would include stipulations for the protection of the area's special values. This area is remote to the point of being inaccessible. No interest has yet been expressed in land use authorizations within it. Therefore, the creation of the avoidance area would have no impact on the Lands and Rights-of-Way Programs.

From visual resource management:

In VRM Class II areas (597,000 acres) right-of-way related facilities would have to be relocated as necessary, buried, or painted a color compatible with their surroundings. Maintaining Class II VRM in viewsheds along highways in southern portion of the resource area would impact rights-of-way, land disposals, and other land use authorizations.

From wildlife habitat management:

The creation of 73,720 acres of right-of-way avoidance areas for the protection of deer winter range, sage grouse habitat, and bighorn sheep habitat would affect the Lands and Rights-of-Way program. If rights-of-way or other discretionary lands actions were to be allowed within these areas, the authorizing documents would include seasonal restrictions on 50,400 acres and stipulations on 23,320 acres to protect the areas' special values. Little interest has been expressed in land use authorizations within these areas. If such an interest were to be expressed, it is doubtful that the imposition of protective stipulations would cause a hardship.

No new sites for communication facilities would be authorized within bighorn sheep habitat. BLM already has developed communication sites in bighorn sheep habitat Bare Mountain (near Beatty), Magruder Mountain, Palmetto Mountain, Monte Cristo Range, Sawtooth Peak, and Montezuma Peak. New communications facilities could be authorized at these developed sites. Communication site right-of-way exclusion areas would be established within bighorn sheep habitat on Silver Peak, Grapevine Mountain, Hot Creek Range, Lone Mountain, Palisade Mesa, and the Quinn Canyon Range. No interest has yet been expressed in developing communications sites in any of these areas except Lone Mountain; however, this restriction could cause a hardship for the communications industry. Restriction of expansion opportunities may eventually lead to overcrowding on existing developed sites.

From special status species management:

Rights-of-Way would be excluded from 70,600 acres of washes within desert tortoise habitat unless the rights-of-way are compatible with the desert tortoise. This would impact the Lands and Rights-of-Way Programs because washes are often the location of choice for

road rights-of-way, particularly sandy washes which are desirable tortoise habitat.

An 80 acre right-of-way exclusion area at North Spring and Reynolds Spring would be designated for the protection of the Railroad Valley spring fish and its critical habitat. These areas are so small there would be no impact on the Lands and Rights-of-Way Program.

From wild horse and burro management:

A 57,600 acre right-of-way avoidance area would be created for the protection of important waters in various Herd Management Areas (HMAs). If rights-of-way or other discretionary lands actions were to be allowed in these areas, the authorizing documents would include restrictions. These areas are remote and little interest has been expressed in land use authorizations within them. Therefore, their creation would have no impact on the Lands and Rights-of-Way Programs.

A 8,320 acres right-of-way exclusion area would be created within a one and one-half mile radius of Specie Spring and a one mile radius of Mud Spring. Because of the small size of these exclusion areas, their creation would have no impact on the Lands and Rights-of-Way Programs.

No lands would be disposed of in HMAs. No serious interest has been expressed in land disposals within the Lone Mountain, Dunlap, Silver Peak, Gold Mountain, Stonewall, Saulsbury, Monitor, Little Fish Lake, or Sand Spring HMAs. However, a great deal of interest has been expressed in land disposals within the Goldfield, Montezuma, Fish Lake, and Bullfrog HMAs, and mild interest has been expressed in land disposals within the Stone Cabin, Hot Creek, Reveille, and Palmetto HMAs. This would severely limit BLM's options for responding to community expansion needs in Goldfield, Fish Lake Valley, and Lida, and it would completely eliminate those options in Beatty. It would also hamper or curtail efforts to increase the landholdings of ranchers, and to resolve trespass cases through land disposal.

From cultural resource management:

Right-of-way avoidance areas would be designated at Moores Station Petroglyphs (40 acres), the Cistern (20 acres), and Mountain View Arrastra (20 acres) for a total of 80 acres. These areas are so small that the creation of these avoidance areas should have no impact on the Lands and Rights-of-Way Programs.

The acquisition of land at Rhyolite would help to consolidate management of that area.

From lands and rights-of-way:

Public lands not identified for discretionary disposal in the RMP would be retained in Federal ownership and would be managed by BLM. Unless these lands were dedicated to a specific use or uses were included within a right-of-way avoidance or exclusion area, they would be available for consideration for rights-of-way or other discretionary land use authorizations such as permits, FLPMA leases, airport leases, etc.

There would be no disposal of lands within the Military Training Route immediately north of the Tonopah Test Range because of the negative effects of low level, high speed flights on human beings and animals.

A total of 40,662 acres would be identified for disposal, including 9,042 acres identified for agricultural entry. Some lands which had been identified for disposal in previous plans would no longer be so identified. There would be no new land identified for agricultural entry. No land would be available for disposal in Beatty, Goldfield, Lida, or around rural ranches. Little land would be available for community expansion in the impact areas of Tonopah and Round Mountain. There would be little room for growth in Manhattan, Ione, or along highways. This is the most restrictive alternative for land disposal and it would have a severely negative impact on the Lands Program.

A total of 711,270 acres would be included in right-of-way avoidance areas for the support of

other resource programs. Because most of these areas are remote and the demand for rights-of-way or other discretionary lands actions is small to non-existent, this would have a negligible effect on the Lands and Rights-of-Way Programs. A total of 48,080 acres would be included in right-of-way exclusion areas for the support of other resource programs. The exclusion areas are remote and the demand for rights-of-way or other discretionary lands actions is small to non-existent. The designation of right-of-way exclusion areas would have a negligible impact on the Lands and Rights-of-Way Program

No additional locations for communication sites would be authorized. Existing communication sites would be expanded to accommodate future demand. This could potentially handicap the communications industry and would have a negative impact on the Rights-of-Way Program's ability to meet public demand.

All other lands within the resource area would be open for rights-of-way, leases, and land use permits unless there were a conflict with other resource values that could not be resolved. This would have a positive impact on the Lands and Rights-of-Way Programs.

A total of 547,139 acres of withdrawals from mineral entry would be requested in support of other resource programs. Most of these would be small, remote parcels, and their withdrawal would have little impact on the Lands and Rights-of-Way Program.

From ACECs:

The 7,040-acre Timber Mountain Caldera National Natural Landmark would be designated as an ACEC. This designation does not specify any special restrictions on the Lands and Rights-of-Way Programs and, therefore, would have no impact.

The Lunar Crater Volcanic Field would be designated as an ACEC. This designation would create a 39,680 acre right-of-way exclusion area. No rights-of-way or other discretionary lands actions would be allowed. However, since no interest has been expressed in authorizations within the area, this designation should have no impact on the Lands and Rights-of-Way Programs.

The Amargosa-Oasis area would be designated as an ACEC. This action and the actions proposed in support of the wild horse and burro program would prevent any land disposals in the Beatty area. This action would also create a 490 acre right-of-way avoidance area. No rights-of-way or other discretionary lands actions would be allowed which are not compatible with the area's special values. Several of the parcels included in this ACEC lie between private land and US 95 and are therefore in high demand for various types of right-of-way. This action could restrict development in the Beatty area. It would seriously impact both the Lands and Rights-of-Way Programs.

Cane Man Hill would be designated as an ACEC. This action would create a 680 acre right-of-way avoidance area. If any rights-of-way or other discretionary land use authorizations were to be allowed within the ACEC, stipulations would be included in the authorizing documents to protect the area's special values. Owing to the small size and remote location of this ACEC, there would be no impact to the Lands and Rights-of-Way Programs.

Lone Mountain would be designated as an ACEC. This action would create a 14,400 acre right-of-way avoidance area. If any rights-of-way or other discretionary lands actions were to be allowed within the area, stipulations would be included in the authorizing documents to protect the area's special values. There has been next to no interest expressed in land-use authorizations within this area in the past ten years. The imposition of special stipulations should not create a hardship. Therefore, there would be no impact to the Lands and Rights-of-Way Programs.

An ACEC would be designated in Railroad Valley. This action would create a 15,470 acre right-of-way avoidance area. If rights-of-

way or other discretionary lands actions were to be allowed within it, the authorizing documents would include stipulations for the protection of the area's special values. It is not expected that the imposition of such stipulations would create a hardship. Therefore, there would be no impact on the Lands and Rights-of-Way Programs.

An ACEC would be designated in Rhyolite. No land disposals would be allowed under any authority. (Under this alternative, no land disposals would be allowed within the Bullfrog HMA.) The Small Tract classification on the four acre site of the Bottle House would be terminated and the site would be withdrawn under the authority of Section 204 of the Federal Land Policy and Management Act. While this action would limit management options in Rhyolite, it would not impact the Lands Program.

An ACEC would be designated at Stormy-Abel. This action would create a 12,320 acre right-of-way avoidance area. If rights-of-way or other discretionary lands actions were to be allowed within it, the authorizing documents would include stipulations for the protection of the area's special values. It is not expected that the imposition of such stipulations would create a hardship. Therefore, there would be no impact on the Lands and Rights-of-Way Programs.

An ACEC would be designated at the Trap Spring-Gravel Bar. This action would create an 8,480 acre right-of-way avoidance area. If rights-of-way or other land use authorizations were to be allowed within this area, the authorizing documents would include stipulations for the protection of the area's special values. Imposition of such stipulations would not create a hardship and, therefore, designation would have no impact on the Lands and Rights-of-Way Programs. No land disposals would be allowed. This would have a slightly negative impact on the Lands Program because it would not allow for the disposal of the site of the Petro Source Refinery which has become difficult and uneconomic to manage. The Gravel Bar Road within the Trap Springs Gravel Bar would continue to be closed. This has a negative impact on the Rights-of-Way Program because the use of this road would make it simpler and safer for crude oil trucks coming from the Grant Canyon Field to get to the Petro Source Refinery.

The Tybo-McIntyre Charcoal Kilns would be designated as an ACEC. This would create an 80 acre right-of-way avoidance area. If rights-of-way or other discretionary lands actions were to be allowed within the area, stipulations would be included in the authorizing documents for the protection of the area's special values.

From recreation:

The establishment of Special Recreation Management Areas would result in a total of 64,850 acres of right-of-way avoidance areas at Clayton Valley Sand Dunes, the Crescent Sand Dunes, and at least three and possibly as many as seven other sites. The establishment of facilities in the Tonopah Extensive Recreation Management Area would require a total of 60 acres of right-of-way avoidance areas at Big Moly, the Sump, Sheep Mountain Wash, Silver Peak Pond, Stonewall Falls, and Yellow Hills. The creation of these right-of-way avoidance areas are small and their creation would have little impact on the Lands and Rights-of-Way Programs.

The designation of primitive and semi-primitive non-motorized areas as right-of-way avoidance areas would have a serious impact on the Rights-of-Way Program due to the large amount of area involved (429,490 acres).

From mineral exploration and development:

Much of the land identified for disposal under the sale and exchange authorities is encumbered with mining claims and could not be disposed of unless those claims are extinguished.

IMPACTS TO UTILITY CORRIDORS

From visual resource management:

No utility corridor designations would be allowed in Class II Visual Resource Management Areas. The Class II area in the northern Reveille Range would marginally interfere with the proposed utility corridor between Warm Springs and the Echo Canyon Reservoir. The Class II area along State Route 265 would constrict the proposed Utility Corridor to two narrow parallel strips one mile on either side of the highway.

From lands and rights-of-way:

The lands identified for disposal along US Highway 6, US Highway 95, and Nevada State Route 265 are included within the proposed utility corridors. This might lead to conflicts as these lands are transferred into private ownership. Private landowners might object to corridors near their property and might resist granting easements for commodity transportation and utility transmission facilities.

From ACECs:

The 7,040-acre Timber Mountain Caldera National Natural Landmark would be designated as an ACEC. This designation would marginally interfere with the proposed utility corridor east of Beatty.

Lone Mountain would be designated as an ACEC. This designation would marginally interfere with the proposed utility corridor between US Highway 6 and Lone Mountain.

The Railroad Valley ACEC and the Trap Springs-Gravel Bar ACEC would severely limit the placement of the utility corridors. Potential corridors that would run northeast from Warm Springs through Hot Creek Valley and across Sand Springs Valley to the Railroad Valley oil field would not be designated. This would severely limit the placement of an east-west right-of-way crossing the resource area.

From recreation:

The proposed utility corridor which passes to the west of Echo Canyon Reservoir would be severely constricted since no utility corridors would be designated within semi-primitive non-motorized areas.

From utility corridors:

No corridors are designated northeast from Warm Springs through Hot Creek Valley and across Sand Springs Valley to the Railroad Valley Oil Field. This would severely limit the placement of an east-west right-of-way crossing the resource area.

IMPACTS TO RECREATION RESOURCES

From visual resource management:

Managing the five scenic highways listed in the current *Esmeralda-Southern Nye RMP* to retain visual values might limit where and how competitive events cross these highways. This occurs on an individual basis as applications for competitive events are received.

The scenic quality of the Lunar Crater SRMA would be enhanced by the increase in size of the protected area from 2,560 to 39,680 acres allowing the inclusion of Black Rock Lava Flow and Easy Chair Crater. This means that all significant features of the SRMA would be managed for their scenic quality. A restriction on vehicle travel to existing roads and trails coupled with a withdrawal from mineral entry, no surface occupancy leasing restriction and denial of nonconforming discretionary uses would provide excellent long term protection for this area.

From wildlife habitat management:

The seasonal restrictions on competitive events between January 15 and May 1 would have no impact since the areas restricted are easily avoided. The closing of deer winter ranges to uses which are incompatible or detrimental to deer would have significant local impacts on vehicle travel between Stone

Cabin and Hot Creek Valleys south of Hot Creek Canyon.

From special status species management:

All vehicle use within the 70,600 acres of identified tortoise habitat would be impacted by a use restriction to existing roads and trails and a closure of the washes to use. Because of the size of the resource area, the impact is not so much a matter of acres (70,600 is about 1.1 percent of resource area) as the specific location surrounding the town of Beatty. Competitive events would still be authorized on the existing cleared course.

From riparian habitat management:

Improvement of riparian habitat would benefit recreation resources by improving trout habitat and increasing fishing opportunities. An improved mix of recreational opportunities for the public would result. The closing of approximately 800 acres along streams and riparian areas to vehicle use would probably provide more long term benefits in terms of improved recreation opportunities than the loss of .0001 percent of the resource area to vehicle use.

From forestry and vegetative products:

Restricting all off-highway vehicle use on 100,000 acres in the Goldfield Joshua tree area to existing roads and trails would increase the level of limitation by including both casual and competitive uses. This would limit the possible travel routes around Goldfield.

From cultural resource management:

Conflicts between cultural resources values and proposed recreation activities such as competitive off-highway vehicle events would be mitigated through the environmental and Section 106 process on an individual basis.

From lands and rights-of-way:

Disposal of 40,662 acres would have little impact on recreation resources. Most of the lands to be disposed of are located in the rural or roaded natural opportunity settings closely associated with towns, ranches and agriculturally developed and altered areas.

Acquisitions at Moores and Pritchards Stations (160 acres each), Rhyolite (645 acres) and Fish Lake (600 acres) would benefit management of these areas as SRMAs and the Morey-Hot Creek Back Country Byway. Managing the Lunar Crater Volcanic Field, Railroad Valley ACEC and the primitive and semi-primitive areas as right-of-way avoidance areas would protect existing scenic values and recreation opportunities.

From ACECs:

The Lunar Crater Volcanic Field (39,680 acres) would be managed concurrently as an ACEC and as a SRMA, with the following restrictions: withdrawal from mineral entry, no surface occupancy on mineral leasing, limiting vehicle use to existing roads and trails, and a closure to discretionary uses. These designations would be beneficial to management of the area.

Designation of the ACECs as limited to existing roads and trails would have minimal impact on recreation resources, particularly off-highway vehicle use. These areas are scattered in small pieces within the resource area and should not impact overall off-highway vehicle use to any measurable degree.

From recreation:

Lands open to unrestricted off-highway vehicle travel would be reduced by half to approximately 45 percent of the resource area.

Limiting vehicle use in the Lunar Crater Volcanic Field SRMA and Railroad Valley Wildlife Management Area to existing roads and trails would not impact SRMA management and might be of benefit in

enhancing recreational activities by retaining naturalness.

Both primitive and semi-primitive opportunity settings would be preserved by closing these areas to off-highway vehicle use. Because these are classified largely according to their distance from roads and other human activities, any intrusion into these areas, such as off-highway vehicle events or casual driving, would result in the downgrading of the opportunities offered by primitive, semi-primitive non-motorized and semi-primitive motorized lands to the next lower opportunity class.

From WSAs:

Interim management of WSAs requires limiting vehicle use to existing roads and trails on 634,815 acres. This is an interim action pending final Congressional resolution of the wilderness designation issue. The interim restriction could remain in place for many years but would cease to apply when lands are released from wilderness study status by Congress. WSA lands designated as wilderness would be closed to all motorized and mechanical uses.

From mineral exploration and development:

The closure and no surface occupancy proposals for fluid mineral leasing would result in a benefit to recreation resources by retaining and enhancing natural environments and scenic features. These benefits would occur in SRMAs and ACECs and wildlife areas where a continued existence of a range of recreation opportunities would be provided.

The withdrawal of the larger SRMAs and ACECs from mineral entry would benefit recreation resources by retaining and enhancing natural environments and scenic features and providing for the continued existence of a range of recreation opportunities.

IMPACTS TO FLUID MINERALS

From vegetation management:

The no surface occupancy restriction on 3,600 acres in the Blue Eagle bristlecone pine area would result in decreased interest in exploring this area because of the requirement to directional drill.

From wildlife habitat management:

The 16,280 acre closure of mule deer habitat and 5,600 acres of sage grouse habitat to leasing would have a negative impact on the fluid minerals program. There are also 50,400 acres of seasonal restrictions. A seasonal restriction on fluid minerals would apply for the life of the plan. If an oil field were discovered in an area of seasonal restriction, that field would have to go to a maintenance status during the restricted season. This would require precise timing to avoid impacts to the affected resource. No oil wells are projected to be impacted since the restricted areas are of low potential. The seasonal restriction also applies to exploration for fluid minerals, requiring exploration companies to precisely schedule their work.

Opening 1,280 acres with a seasonal restriction for bighorn sheep lambing is beneficial to the oil and gas program. The high potential land could be leased for oil and gas and the potential oil field developed. The oil development would be restricted during lambing season which would have an adverse affect.

From riparian habitat:

There would be 3,720 acres in the Railroad Valley ACEC with a stipulation against surface occupancy, and which would require directional drilling to evaluate this acreage. The area near the Kate Springs Oil Field would be the most adversely affected. An estimated four wells would not be drilled because of this stipulation.

From wild horses and burros:

A total of 55,680 acres containing important water sources and 8,320 acres containing critical waters for wild horses and burros would have restrictions against surface occupancy. The majority of these waters are outside of the high potential oil and gas areas and would have little impact on oil and gas. Geothermal development would be adversely affected. It is estimated that this would result in the need to relocate five drill pads to avoid stipulations against surface occupancy for geothermal development during the life of the plan.

From cultural resources management:

Mountain View Arrastra (40 acres), Moores Station Petroglyph (40 acres), Jumbled Rock Petroglyph (10 acres), and Berlin Town Site (704 acres) are closed to mineral leasing. This acreage would be lost from the leasing pool.

The stipulation of no surface occupancy at the Stormy-Abel ACEC would require directional drilling in an area of high potential. An estimated two drilling permits are projected to be impacted during the life of the plan.

The designation of Trap Springs-Gravel Bar ACEC would result in an adverse impact on exploration and development activities because the total ACEC would be subject to a stipulation against surface occupancy. Although the restriction against surface occupancy would not affect valid existing rights, it would preclude development of an existing oil field. An estimated four million barrels of oil would not be recovered.The continued closure of the gravel bar road would result in continued use of less desirable access to transport oil from the Grant Canyon and Eagle Springs field to the refinery.

From ACECs:

The stipulation of no surface occupancy on 39,680 acres in Lunar Crater ACEC would require directional drilling. The size of the area affected would cause exploration of the center of the parcel to be infeasible.

From recreation:

Primitive and semi-primitive non-motorized areas would be closed to fluid leasing. This would prevent leasing 37,500 acres of high potential and 201,000 acres of medium potential lands. It is estimated that the restrictions would preclude the drilling of 25 oil wells during the life of the plan. It is estimated that the restrictions would also prevent the drilling of five geothermal wells.

From fluid minerals management

The exploration and development of fluid minerals would be restricted by other programs. These restrictions are totaled in Table 4 B.

IMPACTS TO LOCATABLE MINERALS

From wildlife habitat management:

The Stonewall Falls withdrawal to protect bighorn sheep is located in a moderate mineral potential area. It is estimated that two plan-level exploration programs would be precluded in the life of the plan (see the reasonably foreseeable development scenarios (RFD) in the Cumulative Impacts section of this chapter for a description).

Off site mitigation would be a cost incurred by the larger mining companies. Additional costs would be incurred on projects reaching a prescribed acreage of habitat disturbance.

From special status species management:

The designation of the Amargosa-Oasis ACEC would result in an estimated five notices being converted to Plans of Operation over the life of the plan.

TABLE 4 B
AVAILABILITY OF LANDS FOR FLUID MINERAL LEASING
RELATIVE TO RESOURCE POTENTIAL

MANAGEMENT CATEGORIES	LOW POTENTIAL ACRES	MODERATE POTENTIAL ACRES	HIGH POTENTIAL ACRES	UNKNOWN POTENTIAL ACRES	TOTAL ACRES
OPEN SUBJECT TO STANDARD TERMS AND CONDITION	331,160	1,182,420	520,620	3,393,777	5,427,977
OPEN WITH MAJOR RESTRICTIONS (NO SURFACE OCCUPANCY)	39,000	24,000	4,000	91,000	158,000
OPEN WITH MINOR RESTRICTIONS (SEASONAL RESTRICTIONS)	0	25,000	0	25,400	50,400
CLOSED TO LEASING (DISCRETIONARY)	7,400	46,980	1,280	395,800	451,460
CLOSED TO LEASING (NONDISCRETIONARY) [1]	0	2,560	0	704	3,624

[1] Assumes that lands in WSA status would be returned to multiple use.

From riparian habitat management:

Closure of the streams to off-highway vehicles would result in the mandatory filing of a Plan of Operation for exploration. One permit would be adversely impacted during the life of the plan. The withdrawal of 15,740 acres in Railroad Valley totally precludes locatable mineral development on lands potentially valuable for lithium. Two permits would be adversely impacted during the life of the plan.

From wild horses and burros:

A total of 8,320 acres in the Bullfrog Herd Management Area would be withdrawn from mineral entry. The areas are already covered by mining claims and their would be no impact to valid existing rights.

From cultural resource management:

Moores Station Petroglyph (40 acres), Mountain View Arrastra (20 acres), and the Cistern (20 acres) would be withdrawn from mineral entry. The Cistern is in an area of high potential and is presently claimed. The Mountain View Arrastra is located in a moderate mineral potential area, and Moores Station Petroglyph is in an area of low potential.

Designation of 680 acres as the Cane Man Hill ACEC would result in notice level exploration being converted to a Plan of Operation and mandatory bonding. This would impact one operation specifically. This alternative would limit future management options when the area is withdrawn from mineral entry. Claims currently exist in the area.

The Rhyolite ACEC would be designated on 460 acres resulting in an estimated four notices yearly being converted to Plans of Operation with mandatory bonding. This area would also be withdrawn from mineral entry and validity exams would be done on all Plans of Operation and the purchase of valid claims would then be undertaken.

From lands and rights-of-way:

The withdrawal of 547,139 acres or nine percent of the resource area would permanently reduce the land base from which to explore, develop, and mine.

From ACECs:

The designation of the Timber Mountain Caldera as an ACEC would result in an estimated eight notices per year being converted to a Plan of Operation with mandatory bonding.

The designation of the Lunar Crater ACEC (39,680 acres) would require any locatable exploration to be done as a Plan of Operation and mandatory bonding. The withdrawal from mineral entry on this acreage would preclude development of property that has not already been staked. There is interest in the area for low grade gold and silver and in the cinders of the area. It is estimated that this would adversely impact two operators on the north edge of the cinders who would be precluded from expanding their operation.

Designation of Lone Mountain as an ACEC would require all exploration in the ACEC to be done under a Plan of Operation with mandatory bonding. Two operations a year would probably be impacted.

The withdrawal of 14,400 acres would restrict mineral exploration in the Lone Mountain area. There is some moderate potential lands involved in this proposal. It has been projected that two exploration operations a year would be impacted. The withdrawal would preclude this exploration.

From recreation:

The closure of an area to off-highway vehicle use limits locatable mineral exploration. In these areas a Plan of Operation is required for activities exceeding casual use. The proposed closure would require converting an estimated 10 notices per year to Plans of Operation with mandatory bonding.

Primitive and semi-primitive non-motorized areas are withdrawn from mineral entry. Semi-primitive areas overlay moderate and high potential mineral areas. This acreage reduction would result in a reduction of new mines and exploration projects projected in the RFD. It is estimated that these closures would reduce the RFD projections by 15 percent. This 15 percent reduction would be in all locatable mineral actions - exploration, development and mining.

IMPACTS TO MINERAL MATERIALS

From visual resource management:

The Class II Visual Resource Management viewshed along State Route 265 would preclude disposal of cinders. The Class II restriction would also preclude development of new pits along five identified highways. This would be one gravel pit per road that would not be opened during the life of this plan.

From wildlife habitat management:

A seasonal restriction on 50,400 acres of wildlife habitat would require precise timing by operators conducting the disturbing activities to avoid conflicts. There are no existing mineral material pits in these locations. Seasonal restrictions would preclude the disposal of new material during the prescribed time.

From cultural resource management:

Cane Man Hill would be removed from the land base from which to sell common variety mineral material. This location is known to contain basalt boulders which are potentially valuable. It is estimated that one potential

sale would be lost during the life of the plan if an acceptable alternative site could not be found.

Trap Springs-Gravel Bar ACEC would preclude the sale or development of new mineral material sources for the oil field. All material would have to be hauled from pits outside of the ACEC.

From ACECs:

No new mineral material sales would be permitted in any of the ACEC's. This might result the increased cost of greater haul distances from alternate sites.

From recreation:

No sales of sand from Crescent Dunes nor Clayton Valley Dunes would be allowed. This would have only a minor impact.

In semi-primitive non-motorized areas it is anticipated that five potential sales over the life of the plan would be adversely affected.

IMPACTS TO NON-ENERGY LEASABLE MINERALS

From wildlife habitat management:

A No Surface Occupancy stipulation on 14,440 acres in Railroad Valley would preclude solid leasable development. The Railroad Valley area would be adversely affected. It is estimated that two prospecting permit applications would be denied over the life of the plan and one brine-type mine would be prevented from developing by this alternative. Areas closed to leasing would not be explored for solid leasable commodities. It is estimated that one prospecting permit would be adversely affected by this closure.

IMPACTS TO ECONOMIC CONDITIONS

From livestock grazing management:

No changes in the administration of grazing on public lands would be introduced, and the livestock grazing program would continue to be guided by previous planning documents. The initial stocking level of 162,766 AUMs has been determined on the basis of previous land use plans together with adjustments based on evaluation of monitoring data.

No significant economic impacts to the livestock grazing industry, or to the local economies, is expected. However, individual ranch operators may suffer some reduction in AUMs should the proposed transfer of up to 55,023 acres of agricultural entry lands and discretionary disposals be accomplished. It is estimated that up to 2800 AUMs could be lost, reducing net ranch income by approximately $14,700. This could impact severely on individual ranch operations.

From lands and rights-of-way:

With only 40,662 acres of public land identified for discretionary disposal, the potential for impacts to economic conditions is of no significance.

Expressions of interest for transfer of public lands to other ownership would continue to be considered on an individual basis. It is expected that the present pattern of land ownership within the RMP area would remain substantially the same. The potential for economic development, or the possibility of realizing benefits that might derive from more efficient use of the land would be diminished. Property tax revenues to the counties, and BLM Payments In Lieu Of Taxes, would not be substantially altered.

From utility corridors:

Because the procedures for right-of-way approval are simplified within designated corridors, the establishment of corridors in this alternative would result in some reduction of right-of-way planning costs to utility companies. On the other hand, since flexibility in future right-of-way location is limited within designated corridors it is possible that transmission lines could be longer. This might result in more frequent power losses and greater operating costs. In addition, utility system reliability might be affected because designated corridors provide limited

opportunity for the separation of transmission lines.

Minor reductions in the value of private lands along future transmission lines could occur. But since the appropriate corridors would be designated well in advance, future development plans could incorporate any necessary considerations. Because transmission lines affect the scenic tranquility of adjacent lands, they are perceived as reducing the value of these lands. Such effects upon land values would likely be limited to the short term, as there is no clear evidence that long term land values are affected by transmission lines (Holberger, et al, 1975).

From mineral exploration and development:

No significant economic impact, either beneficial or adverse, to the minerals industry or to the local economy. Any minerals exploration or development is likely to benefit the regional economy, in terms of income and employment, and minerals development potential under each of the alternatives remains largely unfettered.

The certain stipulations and restrictions that are prescribed, under each of the alternatives provide different levels of constraint for resource protection which are different only in degree. In some cases these constraints moderately increase the costs of exploration and development that may be born by the minerals industry. Leasing restrictions, for instance, have an effect upon oil and gas exploration costs due to the constraints such restrictions impose on scheduling and operating efficiency. No evidence is available to indicate that these additional costs have been sufficiently prohibitive to discourage exploration; and no significantly adverse economic effects would result from such lease conditions.

Any increases or decreases in operating costs, that might result from reasonable and moderate resource protection measures, are not likely to have any effect on an individual operator's decision to undertake exploration in a particular area. Such costs are incidental, not prohibitive, and may be found to exist, in one form or another, in every exploration area. Operator's generally consider such costs to be a normal part of the cost of doing business.

Even in those alternatives which offer the greatest potential for operating economies in exploration, development, and production, such economies are not likely to be of sufficient significance to provide inducement to expanded exploration and development activities.

The major problem underlying the economic evaluation of minerals is the great uncertainty regarding the existence of mineral deposits in sufficient quantity and quality to be commercially feasible. In addition, long-range mineral resource evaluation and market demand estimation are at best speculative. Both mineral resource evaluation and development are directly dependent upon market demands that may be regional, national, or worldwide in scope.

ALTERNATIVE 4

IMPACTS TO AIR RESOURCES

From recreation:

Air quality would be degraded by fugitive dust released during off-highway vehicle events. Impacts would be of short duration.

From mineral exploration and development:

Air quality would be degraded during construction and mining activities as a result of vehicular emissions and fugitive dust. State standards for particulates may be exceeded for short time periods on some project sites but should not be exceeded resource area wide. Mitigating measures are applied for dust and emission abatement. Reclamation is designed to restore the long term productivity of the resources.

IMPACTS TO WATERSHED

From riparian management:

Streambank ratings would be maintained or improved to 70 percent streambank stability ratings and 70 percent streambank cover ratings. Sedimentation would be reduced on 32.8 miles of the streams shown on Table 3 C.

From livestock grazing management:

The implementation of grazing management would increase ground cover and reduce erosion rates.

Rangeland improvements, such as fences and water developments, destroy small amounts of vegetative cover during construction. This activity would increase soil erosion on approximately 1,025 acres in the short term and 167 acres would remain denuded in the long term.

Vegetative manipulation projects on 38,760 acres would increase soil erosion during and shortly after treatment. Two years after reseeding, erosion rates would be less than current levels.

From forestry and vegetative products:

Firewood harvesting would destroy vegetation and disturb the soil resulting in a short term increase in erosion. As the understory vegetation is released from competition with overstory trees, ground cover would increase and soil erosion would be reduced in the long term.

From mineral exploration and development:

Waters found in oil and/or gas producing formations are part of a closed system and will not impact the general ground water of the region. The oil and gas industry must comply with standards to ensure reinjection of produced waters does not degrade ground water aquifers.

There would be a short term loss of soil cover, and a subsequent increase in erosion potential. Soil compaction would occur wherever vehicular use is concentrated. Most long term impacts would be reduced or eliminated by minimizing disturbed areas, using best available construction techniques, by mitigating disturbance through soil stabilization and revegetation.

Long term impacts would occur on 3,900 acres of open pit mining which would not be revegetated.

IMPACTS TO VEGETATION

From vegetation management:

Managing for desired plant communities would provide for a balanced production of forage for wildlife, livestock and wild horses and burros and for watershed protection. In the short term these improvements would generally occur on the more productive sites, first, with the less productive sites showing slower progress. Long term impacts would be increased biological diversity, biomass, cover,

ecological status and production, and a decrease in erosion.

From forestry and vegetative products:

Firewood harvesting of both green and dead wood would have a negative impact on vegetation in the short term. These impacts are the destruction of live trees, the crushing and trampling of understory vegetation and a possible increase in erosion potential. However, harvesting piñon/juniper trees releases the understory vegetation from competition with trees. Biological diversity, production and ground cover would increase. This causes an increase in available forage and a decrease in soil erosion. Harvesting trees would cause minimal impact on pine nut production. There are 314,123 acres of piñon-juniper woodland in the resource area, about 11,850 acres, four percent of the piñon-juniper woodlands, could be cut during the life of this RMP. Firewood cutting areas are not clearcut because one-third of the trees on these areas are too small for firewood.

Of the 231,000 acres which support Joshua trees, 131,000 acres would be open to non-commercial harvest. Harvest would not exceed the sustained yield. There would be little impact on the Joshua tree population, or on adjacent vegetation.

There is a small demand for desert shrubs. Collection of live desert shrubs should have little effect on vegetation. The entire resource area would be available for harvest of common desert plants. Since authorizations are discretionary and subject to environmental reviews no noticeable impacts to vegetation are anticipated.

From rangeland improvements:

The largest impact to vegetation from any range improvement project would be from vegetative manipulation. Short term impacts would be a loss of existing vegetative cover and biomass. Once established the seeding itself would mitigate these impacts. The long term effect of seedings would be to diversify vegetation and increase forage production.

The short term impacts of developing wells, pipelines, fences, reservoirs, and springs would be to disturb 1,052 acres of vegetation cover. Because the disturbance would be scattered over a large area, the short term impact would be insignificant. The long term effect of these projects would be to improve distribution and control of livestock which would cause an increase of vegetative biodiversity, production, and ecological status.

From livestock grazing management:

Vegetation conditions would improve as more intensive management is implemented. Short term impacts would be small increases in plant vigor, litter, production, and seedling establishment. Long term impacts include larger increases in plant vigor, litter, production and seedling establishment, plus an increase in biodiversity, ecological status, plant density, palatable shrubs, and cool season grasses. Impacts of grazing to major vegetation types follow.

Salt Desert Shrub The more productive saltbrush ecological sites would respond well to intensive grazing management during wet and normal precipitation years. The less productive sites would change very slowly. Small improvements would occur during wet years. More palatable grasses and shrubs would increase.

Sagebrush Grazing would have little impact on black sagebrush sites. During wet and normal precipitation years Wyoming big sagebrush sites would respond to intensive grazing management. The presence of more palatable bunch grasses would increase as sagebrush decreases.

Piñon-Juniper Woodlands These areas would not be significantly impacted by grazing.

Hot Desert The few productive sites would respond to intensive grazing management.

Alkali Meadows and Bottoms These areas would respond well to intensive grazing

management with an increase in palatable grasses.

Mountain Mahogany Due to the inaccessibility of this type, mountain mahogany would not be impacted by grazing use.

Riparian Riparian areas would respond well to improved grazing management with increases in vegetation diversity, density and production.

From wild horses and burros

Grazing by wild horses and burros impacts the major vegetation types in the same way as described for lifestock grazing

From lands and rights of way

Overall agricultural entries would have a small impact on vegetation. In the past only seven percent of all agricultural entries have succeeded. Based on this premiss only seven percent (1,982 acres) out of a total 28,314 acres available for agricultural entry would be developed.

From mineral exploration and development:

Mineral exploration and development activities would disturb 36,658.5 acres of vegetation as follows: locatable minerals, 24,650 acres; oil and gas, 944 acres; geothermal, 364.5 acres; non-energy leasing, 7,700 acres; and mineral material sales, 3,000 acres.

Short term impacts from surface disturbing activities are 1) increased soil erosion by wind and water; 2) a small loss of forage and habitat for wildlife, livestock and wild horse and burros; and 3) a visual impact. Reclamation and revegetation should minimize these effects. Long term impacts tend to be mainly visual since disturbed soil supports different vegetation from undisturbed soil.

From fire:

Overall, fire would have a small impact on vegetation. Prescribed and natural fires on piñon-juniper or big sagebrush vegetation releases beneficial forage plants from the understory. Biological diversity would increase after the initial loss of vegetation. Recovery from fire on salt desert shrub vegetation is slow due to low precipitation and poor soils. Without seeding and protection from grazing, these sites would be dominated in the long term by introduced annuals, such as cheatgrass or halogeton.

IMPACTS TO WILDLIFE HABITAT

From riparian habitat management:

Wildlife would benefit from improved riparian areas and a greater diversity of species would find suitable habitat along 32.8 miles of stream.

Trout and other aquatic wildlife would benefit from riparian improvement along 9.4 miles of stream. Improved management would increase shading of streams lowering temperatures, decrease sediment loads, and improve overall water quality.

From wildlife habitat management:

The development and successful implementation of habitat management plans (HMP) would improve wildlife habitat and allow for increases in wildlife populations in accordance with land use plan objectives.

Bighorn sheep would benefit from the reintroduction of bighorn sheep into the Hot Creek, Goldfield, Amargosa, Magruder/Palmetto, Monte Cristo, Montezuma, Silver Peak, Sawtooth, Bare Mountain, and Gold Mountain habitat areas.

Mule deer, bighorn sheep, and sage grouse would benefit from the protection provided by right-of-way avoidance areas or seasonal restrictions placed on land use authorizations during critical time periods on important winter ranges, strutting grounds or lambing areas.

Limiting animal damage control to the offending animals only would benefit the predator population in the short term since non-offending predators would not be killed. An increase in predation on game and non-game animals could result from the higher population of predators.

From forestry and vegetative products:

Mule deer would benefit from firewood sales on 11,850 acres of piñon/juniper woodland. Removal of trees would create openings in the overstory canopy which would provide additional sunlight, moisture, and nutrients for important browse and forage species. Residual piñon/juniper trees would provide adequate thermal and escape cover. The new cutting areas proposed at Kawich, Squaw Wells, and Piper Peak would benefit deer by distributing the cutting more evenly over the mule deer habitat.

From livestock grazing management:

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horse/burro management are made, wildlife habitat is expected to improve.

Antelope, mule deer, and bighorn sheep habitat would improve through the increased availability of important forage plants. No impacts to Rocky Mountain elk would occur.

Wet meadows and stream bottom riparian areas are preferred by sage grouse for brooding areas and are also preferred by livestock who remove brood cover. Sage grouse habitat would improve with better grazing management in wet meadows and stream bottom riparian areas. Adverse impacts may occur in the long term if exclusion were required to improve riparian areas and rank stands of grasses and grass like plants displace forbs and succulent new growth. Sage grouse habitat could benefit from grazing management designed to increase forbs in meadow areas.

Since competition for available water is a limiting factor in much of the resource area, wildlife would benefit from the five reservoirs, 25 spring developments, 28 wells, and 41 miles of pipeline to be developed for livestock.

Waterfowl and riparian habitats would benefit from the grazing treatments proposed in the Railroad Valley Wildlife Management Area which are designed to periodically remove rank old growth and to stimulate new growth of riparian vegetation.

From wild horses and burros

Wildlife habitat is expected to remain in its present condition in the short term. As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horse and burro management are made, wildlife habitat is expected to improve.

From lands and rights-of-way:

Land disposal could have long term negative impacts on wildlife since blocks of land have been identified for discretionary disposal in historical bighorn sheep habitat, deer winter habitat, sage grouse habitat and antelope habitat. All land disposal is discretionary and is preceded by an environmental analysis. This process identifies important resource values such as important wildlife habitat, which should be retained in federal ownership.

Adverse impacts to deer, bighorn sheep, and sage grouse would be minimized since 72,400 acres of important habitats would be protected through seasonal restrictions on land use authorizations.

Adverse impacts to bighorn sheep habitat would be avoided by a requirement that no land uses would be authorized unless they are compatible with bighorn sheep, and by a requirement that no new roads to communication sites be authorized.

Fisheries habitat would benefit from the acquisition of Fish Lake and the pond at Moores Station.

From recreation:

A short term adverse impact to wildlife could occur due to off-highway vehicle events in critical habitats or during such critical periods as birthing or rearing of young. High speed competitive events increase the potential for harassment of wildlife when events pass by critical waters. Spectators also cause damage to habitat and add to the harassment of wildlife. Beneficial effects on wildlife would result on 72,400 acres where competitive off-highway vehicle events would have seasonal restrictions to protect mule deer, bighorn sheep, or sage grouse on seasonal ranges.

Bighorn sheep would also benefit from the closure to vehicle use on areas within bighorn sheep habitat which would be classified as primitive or semi-primitive non-motorized. Much of the rest of the bighorn sheep habitat would benefit from the semi-primitive motorized area classification which would designate these areas as closed to off-highway vehicle events. In addition, 1,440 acres of lambing grounds and 5,800 acres around Specie Spring are closed to competitive events.

Trout habitat could benefit from the closure of 9.4 miles of trout stream to the adverse impacts of off-highway vehicle use.

From utility corridors:

Identified corridors would traverse 388 miles of antelope habitat, 10 miles of mule deer habitat, and border 16 miles of bighorn sheep habitat. None of the corridors would affect wildlife habitat of high value and therefore impacts should be minimal. The greatest impact would be associated with the construction of major pipelines or transmission lines which would be short term. The long term impacts would result from new or improved roads providing increased access and human intrusion into formerly undisturbed habitat.

From mineral exploration and development:

Adverse impacts to wildlife could result from mineral exploration and development activities. Impacts include loss and degradation of habitat, harassment, and a proliferation of roads which fragment the habitat. These impacts are reduced by seasonal restrictions on mineral leasing on 49,000 acres of mule deer, bighorn sheep or sage grouse habitat. The opening of 23,160 acres of important wildlife habitat previously closed to mineral leasing with a seasonal restriction would minimize disturbance of wildlife during critical periods. The previously closed habitat could be affected by surface disturbing activities.

Bighorn sheep lambing grounds would be protected by withdrawal from mineral entry on 1,440 acres of land at Stonewall Falls and Little Meadows where there is a high potential for locatable minerals.

Long term benefits might occur if under utilized wildlife habitats were developed through appropriate off-site mitigation measures to replace habitats destroyed by mining activities.

IMPACTS TO SPECIAL STATUS SPECIES

From livestock grazing management:

The population of Railroad Valley springfish would be maintained or enhanced by the continued protection of North Spring, Reynolds Spring, and the refugium at Chimney Spring through the exclusion of livestock. Periodic short term use by livestock would prevent riparian vegetation from encroaching into open water which degrades springfish habitat.

Desert tortoise populations would be maintained. Implementation of the grazing restrictions consistent with the *Biological Opinion for the Proposed Livestock Program within Desert Tortoise Habitat in Southern Nevada* would ensure tortoise recruitment is sufficient to maintain a stable population on 70,600 acres of Non-Intensive Category III desert tortoise habitat.

From lands and rights-of-way:

Approximately 30,000 acres of Non-Intensive Category III desert tortoise habitat are identified for possible disposal. Disposal of these lands would have an adverse impact. However, since all land disposal actions are discretionary and are preceded by a land report/environmental analysis, this process would identify any sensitive, threatened or endangered species habitat and provide for mitigation and/or avoidance of possible adverse impacts. All Federal actions which might impact a threatened or endangered species would be evaluated by the USFWS under provision of Section 7 of the Endangered Species Act.

From ACECs:

Amargosa toad and Oasis Valley speckled dace habitat would benefit from the actions proposed in the designation of the Amargosa-Oasis ACEC. Livestock and wild burros would be restricted from 490 acres which would protect riparian vegetation from grazing and improve water quality. Occasional grazing would control the encroachment of riparian vegetation into open water needed by the tadpoles and dace. Habitat conditions would also be beneficially affected by protection from off-highway vehicle use. Adjacent private lands supporting toad and dace habitat could be acquired which would result in improved management of additional habitat. All mining operations proposed within the ACEC would require a plan of operations which would protect the ACEC's values through the development of appropriate mitigation measures. Withdrawal of the area from mineral entry would prevent expansion of mineral rights in the habitat area. Land use authorizations would be limited to those which are compatible with the management of the area.

The Railroad Valley springfish would benefit in the short term and the long term from the actions proposed in the designation of the Railroad Valley ACEC. Land use authorizations which could adversely impact the springfish would not be allowed on 80 acres of surrounding habitat. The springs containing the springfish would continue to be protected from livestock. Adjacent private lands contain springfish habitat and are identified for possible acquisition which would add to the habitat managed for their benefit. The adverse impacts of mineral exploration and development would be avoided by a withdrawal from mineral entry and a no surface occupancy stipulation on oil and gas and geothermal resources. Potential adverse impacts from off-highway vehicle use would be avoided by limiting vehicles to roads and trails.

From recreation management:

In the long term off-highway vehicle use could result in direct mortality of desert tortoise and cause a proliferation of trails destroying and fragmenting habitat. Desert tortoise would benefit from the limiting of vehicle use to existing roads and trails and the protection of washes in tortoise habitat. Desert tortoise surveys conducted prior to off-highway vehicle events would ensure that tortoise would allow for changes in the course to avoid occupied habitat.

Amargosa toad and Oasis Valley speckled dace habitat would benefit from the limitation of vehicle use to existing roads and trails on 490 acres.

All Federal actions which might impact a threatened or endangered species would continue to be submitted to the USFWS for Section 7 consultation, as required by law.

From mineral exploration and development:

Requirements listed under Section 7 of the Endangered Species Act would prevent any serious impacts to the listed or candidate T&E species in the resource area.

Potential impacts to the Railroad Valley springfish from fluid mineral development would be mitigated by a no surface occupancy restriction on mineral leasing on 80 acres in an area of high potential for oil and gas, and moderate potential for geothermal resources.

Adverse impacts from locatable mineral exploration and development are not anticipated since the mineral potential is low.

Approximately 24,000 acres of Non-Intensive Category III desert tortoise habitat are located within an area of high potential for locatable minerals. The remaining 46,600 acres, is in an area of moderate potential. Although the desert tortoise is at the northern extremity of its range and the population is low, there is the potential for a small number of tortoise to be killed by mining activity and for habitat to be lost. Exploration activities would result in short term negative impacts to the tortoise. The term of development activities would be dependent on the life of the mine.

IMPACTS TO RIPARIAN HABITAT

From riparian habitat management:

There are an estimated 2,235 acres excluded from livestock in the Railroad Valley Wildlife Management Area, 40 acres are expected to improve from fair to good and the rest, 2,195 acres would be maintained in good condition.

Riparian conditions would improve in the long term (see Table 3 C). Three and one-half miles of stream in satisfactory condition (Troy Creek, Deep Creek, Moores Creek, and Perry Aiken Creek) would remain so. Another 6.5 miles with an improving trend (Pine Creek, Eden Creek, and Jefferson Creek) would continue to improve. On six miles of stream (Hunts Canyon Creek, Barley Creek, Corcoran Creek, Little Meadow Creek, and Clear Creek) where the streambank stability and streambank cover ratings are both less than 50 percent, progress would be made through improved livestock management or by fencing and exclusion of livestock and wild horses. For the 10.3 miles of stream in unsatisfactory condition where the trend has not been determined, conditions would also improve.

From livestock grazing management:

As the findings of the monitoring and evaluation program are implemented and adjustments in livestock and wild horses and burros are made, riparian habitat is expected to improve in the long term. The impact of grazing on riparian habitat depends on the accessibility of the area, the number of grazing animals in the area and the period and duration of use. The lack of water and sparse vegetation on much of the resource area causes livestock and to a lesser extent wild horses and burros to concentrate on the riparian habitat for water, forage and shade. Under current management, season-long grazing takes place in most allotments in the resource area. The impact on riparian vegetation is continuous over use which reduces stream flow, water quality, increases erosion and invasion of undesirable vegetation. Riparian areas would respond well to improved grazing management with increases in vegetation diversity, density, and production in the long term.

Range improvements would provide additional water, forage, and control facilities to reduce grazing impacts on riparian areas somewhat. There are 23 springs proposed for development which would have the spring sources protected from the adverse impacts of utilization by livestock and wild horses and burros. This would provide for some improvement of aquatic habitat conditions through reduced erosion, improved water quality, increased ground water recharge, more stabilized streambanks, more productive habitat, more diverse stream channels and increase species diversity. However, most existing spring developments would not exclude livestock and wild horses and burros and significant grazing impacts on spring sources and associated riparian zones would continue.

From lands and rights-of-way:

Riparian habitat management could be adversely impacted since approximately six miles of streamside riparian areas would be identified for disposal. However, all land disposal is discretionary and is preceded by an environmental analysis. This process identifies important resource values which would be retained in federal ownership, such as springs

and seeps, unless disposal would be in the public interest.

From recreation:

Limiting off-highway vehicles to existing roads and trails in the Railroad Valley ACEC would protect 4,154 acres of riparian areas. In the Amargosa-Oasis ACEC, two miles of streamside riparian and nine springs would also be protected. The off-highway vehicle closure along 9.4 miles of stream would protect 800 acres of riparian habitat from potential adverse impacts.

From mineral exploration and development:

Of the 32.8 miles of streamside riparian identified on Table 3 C, 29 percent are in areas of high potential, 31 percent in areas of moderate potential, and 40 percent are in areas of low potential for locatable minerals. Mineral exploration and development could adversely impact riparian zones.

The Amargosa-Oasis ACEC would be withdrawn from mineral entry protecting two miles of streamside riparian and nine springs in areas of moderate and high potential for locatable minerals. Riparian areas, including springs and seeps, would be given protection by the standard terms and conditions applied to leasable minerals.

Riparian habitats would benefit from no surface occupancy stipulations and withdrawal from mineral entry in the Railroad Valley ACEC. The potential for oil and gas is high and the potential for geothermal resources is moderate in the Railroad Valley ACEC. An estimated 3,720 acres of riparian area are protected by a no surface occupancy stipulation. Although the locatable mineral potential is low, the withdrawal for the Railroad Valley ACEC protects an estimated 4,154 acres of riparian areas.

IMPACTS TO FORESTRY AND VEGETATIVE PRODUCTS

From forestry and vegetative products:

No adverse impacts would occur to the woodland resource as a result of firewood harvest. The current level of harvest is within the sustained yield on the operable woodland acres. The demand for firewood has averaged 675 cords for the past three years. It is anticipated that future demand would increase until the sustained yield of 1,000 cords a year is authorized and 20,000 cords would be sold during the life of the plan. The greenwood cutting areas would naturally reforest in a short period of time since the smaller trees are not cut. Harvest in the Lida area would be artificially heavy while other areas would be light in the short term. In the long term, the harvest of fuelwood could be more evenly distributed throughout the resource area. The sustained yield on the 28,293 acres of operable woodlands outside primitive and semi-primitive non-motorized areas with off-highway vehicle restrictions is approximately 1,000 cords per year. The 10,300 acres identified as greenwood cutting areas represent 42 percent of the operable woodland base. This provides adequate volume to last 30 years, which is beyond the life of the plan, while leaving one-third of the crown cover standing on the harvest sites.

From recreation:

Adverse impacts to firewood harvest levels result from limiting off-highway vehicle use to existing roads and trails in semi-primitive motorized areas. When and if Congress releases wilderness study areas for multiple use purposes, approximately 14,300 acres of otherwise operable piñon juniper woodlands would not be available due to the off-highway vehicle restrictions on semi-primitive motorized areas. There are 1,000 acres on Piper Peak and in the Kawich which are within the semi-primitive motorized area where the off-highway vehicle restrictions have not been applied to allow for fuelwood harvest areas. Although this would not increase the annual

cut, it would help to more evenly distribute the cutting.

From mineral exploration and development:

Mineral exploration and development could have a positive impact on woodland management. The development of roads and trails in stands of piñon/juniper resulting from mineral exploration would improve the access to woodland products and help to more evenly distribute the harvest of firewood and other vegetative products.

Negative impacts would be minor since reasonably foreseeable development scenarios for all mineral programs anticipate that less than one percent of the resource area would have surface disturbance due to mineral location and development.

IMPACTS TO LIVESTOCK GRAZING MANAGEMENT

From vegetation management:

Managing for desired plant community would have a short term negative impact on livestock grazing use where it is determined that a reduction in livestock use were necessary to attain objectives. In the long term, the impact to livestock grazing would be positive where additional forage becomes available and some or all of the initial reductions are restored.

From wildlife habitat management:

The restriction of livestock grazing from 9,127 acres of critical deer winter range closed to grazing at Morey Bench and Toiyabe Bench has had a minor negative impact on grazing management within these areas. As habitat conditions within these areas improve and other conditions stipulated in existing plans are met, the periodic use of these areas by livestock can have a positive impact through increased management options.

The adjustment of livestock grazing use based on monitoring of wildlife habitat management objectives would have a negative impact on livestock numbers in the short term. However, as resource conditions improve the carrying capacity for all herbivores, including livestock would increase.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat within portions of two allotments. Should use exceed the levels specified in the *Biological Opinion for the Proposed Livestock Program Within Desert Tortoise Habitat in Southern Nevada*, the lessees would have to remove all livestock from this habitat. However, the impact on these operations would be minimal as there is grazing land available in both allotments outside of tortoise habitat to which livestock could be moved. Therefore impacts to grazing management would be minimal.

Critical habitat for the Railroad Valley springfish has been excluded from livestock grazing where it occurs on public lands. A total of 124 acres of springfish habitat would continue to be excluded from livestock.

The 490-acre Amargosa-Oasis ACEC would be excluded from livestock to protect habitat for the Amargosa toad and Oasis Valley speckled dace. This action would negatively impact livestock grazing management in the long term since these acres contain the more desirable forage for the livestock and supply their primary water sources.

From riparian management:

There are 2,317 acres of riparian areas within the Railroad Valley Wildlife Management Area excluded from grazing. No adverse impacts to grazing management are associated with this action. In the long term, there might be some positive impacts as livestock are used to remove encroaching riparian vegetation.

A total of 229 acres of riparian corridors along six miles of stream would be fenced and excluded from livestock grazing. The net loss of 24 AUMs would result in four allotments. This loss would be less than one percent of the total use and is therefore only a slight impact.

From wild horse and burro management:

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing for wild horse and burro population levels, as determined from the findings of the monitoring and evaluation program, could require a reduction in livestock numbers to provide habitat for wild horses and burros and for other resource values.

From cultural resource management:

The impacts of cultural resource management on livestock grazing management would be minimal. Normally, to protect cultural sites, proposed livestock management facilities are either relocated or rerouted to protect these sites.

The prohibition on new range improvements and the requirement not to increase grazing levels in the vicinity of Storm, Abel and Coyote Hole Springs would not impact grazing use, since no new range improvements are planned in this area.

From lands and rights-of-way:

A total of 297,000 acres could be transferred out of federal ownership. This is 4.8 percent of the total available grazing land in the resource area. All land disposal is discretionary and is preceded by an environmental analysis to identify resource values which should remain in federal ownership. Only the Francisco and Smoky Allotments would be impacted significantly. The Francisco Allotment would be virtually eliminated if all identified lands were transferred, while approximately one half of the Smoky Allotment would become private. This would have significant negative impacts on five permittees and their current grazing privileges.

From mineral exploration and development:

Because areas disturbed by mineral exploration and development would be reclaimed, long term or significant impacts to forage production are not anticipated. Short term negative impacts would result from the temporary loss of 1,308 acres of available grazing lands through oil, gas, and geothermal exploration and development. This would not be considered significant when viewed in relation to the total acreage available. In addition, short term negative impacts would result from the temporary loss of 24,650 acres of available grazing lands due to the exploration and development of locatable minerals within the resource area. Short term negative impacts would also result from the temporary loss of available grazing lands to the sale of mineral materials. Based upon the projected development of mineral materials, 3,000 acres of available grazing lands would be temporarily lost to livestock operators throughout the resource area. This acreage represents one-half of one percent of the total acreage open to grazing within the resource area.

From fire:

Both positive and negative impacts to grazing management can result from fire. Negative impacts result from a short term loss of forage disruption of existing management systems and possible closure to grazing for revegetation of the burn site. A long term negative impact could occur if the burned area is invaded by unpalatable plants such as rabbitbrush or halogeton, thus effectively reducing forage production. Positive impacts can result from fire by reducing the density of tree and brush species and releasing more desirable forage. Since naturally occurring fire is infrequent (only 1,947 acres burned between 1980 and 1990) impacts would be insignificant. The use of prescribed fire for vegetative manipulation on approximately 36,400 acres would result in long term positive impacts to forage availability and increased management options.

IMPACTS TO WILD HORSES & BURROS

From wildlife habitat management:

Wildlife proposals to support Habitat Management Plans, such as big game guzzlers and reintroduction of bighorn sheep, could result in wildlife populations expanding into areas currently utilized by wild horses and burros. Expanding usable wildlife habitat and allowing mule deer, antelope, and bighorn sheep to increase and reach levels consistent with the carrying capacity could result in competition between wild horses and burros and wildlife. If inter-specific competition becomes evident through the monitoring and evaluation program, a long term impact might occur if wild horses and burros were reduced.

From special status species management:

There are 70,600 acres of Non-Intensive Category III desert tortoise habitat in the Bullfrog HMA (more than 45 percent of the HMA). Should use by burros exceed the levels specified in the *Biological Opinion for the Proposed Livestock Program Within Desert Tortoise Habitat in Southern Nevada*, the burro population would be reduced. These long term impacts could be significant.

There are 490 acres in the Amargosa-Oasis ACEC which would be excluded to protect Amargosa toad and Oasis Valley speckled dace habitat. This action would negatively impact the wild burros in the long term since these acres contain the more desirable forage and supply the primary water sources.

From forestry and vegetative products:

The greenwood cutting areas at Silver Peak, Piper Peak, Montezuma, Bellhelen, and Kawich (a total of 6,200 acres within the HMAs) would have minimal adverse impact on wild horses and burros. There could be some stress imposed by human intrusion during cutting. The long term effect would be a more open area, better visibility, and the potential for more grasses and forbs.

From livestock grazing management:

Wild horses and burros would be beneficially impacted through improved grazing management and resulting improved range conditions.

Range improvement projects could beneficially impact wild horses and burros by establishing more dependable supplies of water and better distribution of animals in the HMAs.

Proposed fencing along U.S. Highway 6 through Stone Cabin HMA would have an adverse impact on wild horses. The fence would divide the Stone Cabin HMA into two separate use areas and result in a long term restriction on travel patterns.

Domestic livestock and wild horses and burros compete for forage, water, and space wherever their areas of use overlap. Managing for livestock in HMAs, as determined from the findings of the monitoring and evaluation program, could require a reduction in wild horse/burro numbers to provide forage for livestock.

From wild horse and burro management:

Removal of wild horses and burros on a three year cycle would have a short term adverse impact on wild horses and burros by reducing population sizes to a point from which it will take three years to again reach initial herd sizes or appropriate management levels. This action would have a positive impact on the wild horses and burros left on the range since fewer animals would mean less competition for forage, water, shelter, and space.

The application for water rights and/or assertion of public water reserves on certain waters within the HMAs could positively impact the wild horses and burros by guaranteeing Federal water rights in the long term. This in turn would allow improvements to be made on existing important water sources which would result in improved water flow and reliability.

From lands and rights-of-way:

A total of 66,000 acres of land within HMAs would be available for discretionary disposal; 23,000 acres in Bullfrog HMA, 10,000 acres in Fish Lake Valley HMA, 11,000 acres in Goldfield HMA, 11,000 acres in Montezuma HMA, 1,000 acres in Palmetto HMA, and 10,000 acres in Stone Cabin HMA. However, all land disposal is discretionary and preceded by an environmental analysis to identify resource values which should be retained in federal ownership.

Lands disposed of within the boundaries of a herd area could not be replaced by lands outside the boundaries. The loss of territory has the potential of causing long term adverse impacts to wild horses and burros by reducing their forage, water, shelter, and space. The lack of any of these requirements could potentially force wild horses and burros to move outside the boundaries of the herd area which could result in the removal of the animals from the range. In addition, long term conflicts with private landowners within the HMAs could result.

From recreation:

Short term negative impacts could result from running of competitive off-highway vehicle events through HMAs. Events run from May through June could have impacts on foals if the mare and foal are separated. Events run near important water sources could result in animals avoiding water for the duration of the race. The closure of 160 acres (one-quarter mile radius) to off-highway vehicle events around Mud Spring and Specie Spring would reduce the potential for disturbance to wild burros during events. No long term affects are anticipated from competitive off-highway events.

The designation of primitive and semi-primitive non-motorized status on 82,000 acres within the HMAs would benefit wild horses and burros since these lands would be closed to vehicle use.

From mineral exploration and development:

The potential for locatable minerals is high on 17 percent of the acreage inside HMAs and moderate on 38 percent. The exploration and development of mineral resources could impact wild horses and burros. In the short term this activity could drive animals away from the waters and forage. If these activities last for an extended period of time the normal grazing and watering practices could be permanently modified. Wild horses and burros would either adapt to the disturbance or move to other locations. Most disturbed areas would be reclaimed which in the long term would make these reclaimed lands again available to wild horses and burros.

IMPACTS TO CULTURAL RESOURCES/PALEONTOLOGICAL RESOURCES

From forestry and vegetative products:

Opening piñon/juniper to firewood harvest on 11,850 acres has the potential for significantly impacting 286 cultural sites, and the traditional values of local Native American populations who rely on the piñon harvest for a portion of their sustenance. Long term impacts from firewood harvest include: damage to cultural features, horizontal and vertical displacement of artifacts resulting from trees, equipment, and vehicles being dragged or driven over sites, and increases in illegal excavation and collection activities as a result of improved access.

Closure of the Baxter Springs greenwood cutting area would result in decreased disturbance to an undetermined number of sites.

From livestock grazing management:

Rangeland improvements would impact 39,785 acres. Vegetation manipulation efforts are anticipated to occur on approximately 38,760 acres. Efforts to manipulate vegetation through manual, mechanical, and chemical methods or prescribed burns, could result in significant damage to cultural properties, and might impact traditional values.

Manual and mechanical methods can alter or destroy the spatial context of artifacts and features; prescribed burns may cause the destruction of perishable artifacts near the ground surface, heat spalling on rock art panels, and alter artifacts so that some dating techniques are no longer usable; and some chemical techniques may preclude later use of Carbon-14 dating. Effects from continued and increased use of 38,760 acres by cattle include horizontal and vertical displacement of artifacts, damage to artifacts and features, destruction of sites during construction of rangeland improvements, and surface disturbance associated with vehicles used by permittees. An estimated 1,431 sites might be affected by activities associated with rangeland improvement.

Livestock would be excluded from 12,199 acres. Protection from disturbance associated with rangeland improvements and grazing would be afforded to 439 cultural resources estimated to be present on this acreage. Some riparian zones are included in these exclusions. This should enhance the probability for site protection as riparian environments are highly sensitive locations for cultural resources.

From cultural resources management:

Emphasis would be placed on developing proactive aspects of the cultural resources program. ARPA surveillance points would be established in a number of locations, ARPA law enforcement and monitoring plans would be written for a minimum of nine sites/districts, and activity plans would be written for approximately seventeen sites/districts over the life of the Plan. A Class I overview would be prepared for the resource area to help guide management decisions. These actions would result in long term positive impacts to cultural resources.

Interim management directions for archaeological districts in northern Railroad Valley would result in decreased impact to sites/features by limiting vehicle use to existing roads and trails and prohibiting discretionary surface disturbing activities in the Trap Springs/Gravel Bar area and by prohibiting new range improvements in the vicinity of the Stormy-Abel district until such time as a comprehensive research protocol could be developed and implemented. Interim management direction for cultural resources in northern Railroad Valley in this alternative is not as restrictive as those proposed in Alternative 3. Impacts to the Trap Springs and Gravel Bar districts would continue in areas that could be accessed by existing roads, and the Stormy-Abel district would continue to be impacted by heavy grazing in the vicinity of existing watering troughs.

A comprehensive research protocol and data recovery program would be developed for the Trap Springs, Gravel Bar, and Stormy-Abel prehistoric districts. Data recovery at these localities would benefit the scientific community, but would result in partial destruction of the sites through controlled excavation. Eventual release of the Trap Springs and Gravel Bar districts for fluid minerals development could be expected to result in destruction of the remainder of these sites, while relaxation of proposed interim rangeland development restrictions in the vicinity of Storm, Coyote, and Abel springs would result in continued degradation of sites and features in this prehistoric district.

No surface occupancy would be stipulated for 50 acres surrounding two known archaeological and historic sites not a part of cultural ACECs. It is estimated that a minimum of two additional sites might be protected within this acreage. Berlin Town Site (704 acres) would benefit from continued closure to mineral leasing. Withdrawal from mineral entry and restriction of vehicles to existing roads and trails at Moores Station Petroglyphs (40 acres) and Mountain View Arrastra (40 acres) would result in added protection for two known cultural resources and an estimated minimum of two additional cultural properties. Restriction of vehicle use to designated roads and trails at the Cane Man Hill Petroglyph site would allow one road to be closed that is encroaching on the site, thereby affording an added degree of protection to the panels.

Three cultural ACECs would be designated. The Rhyolite ACEC would consist of 61 acres surrounding the main structures at the north end of the townsite, but would afford no protection for structures and historic archaeological remains in other areas of the town. The Cane Man Hill ACEC would consist of 680 acres encompassing the known extent of the petroglyph panels. The Tybo-McIntyre ACEC would consist of four, twenty acre parcels surrounding the known kiln groups. All cultural ACECs would be withdrawn from mineral entry with a no surface occupancy stipulation. These restrictions should decrease the chance of impacts to sites/features within the ACECs from locatable and fluid minerals development.

From lands and rights-of-way:

A total of 297,000 acres of land have been identified for discretionary disposal. Disposal of public land and ensuing construction activities might result in complete destruction of cultural properties. Disposal of land for agricultural purposes might result in partial or complete destruction of sites as a result of field preparation methods or intensive use of the area by livestock. Land disposals might also increase access into areas resulting in a rise in illegal excavation and collection activity. It is estimated that 5,342 cultural properties might be present in areas proposed for disposal. Land disposals are discretionary and would not occur if there would be unacceptable impacts to cultural resources.

Retention of areas identified for disposal within the Amargosa-Oasis ACEC, in riparian areas along Perry Aiken and Jefferson creeks, and within deer winter range along Chiatovich Creek would result in some degree of protection from development for an undetermined number of sites. Acquisition of 320 acres at Moores and Pritchards Stations, 480 acres at Locke's Ranch, 600 acres at Fish Lake, and 280 acres within the Amargosa-Oasis ACEC would bring an estimated 30 sites under federal control, providing them some degree of protection from land disturbing activities. Acquisition of Moores and Pritchards Stations might become a burden to the cultural resources program because of the need to stabilize and rehabilitate the structures. However, benefits afforded by developing interpretive facilities and increasing recreation opportunities in these areas might outweigh the cost of stabilization and rehabilitation. Private lands adjacent to the Rhyolite ACEC would not be acquired, perpetuating management problems relating to mixed ownership.

From recreation:

A total of 4,838,331 acres would remain open and unrestricted to off-highway vehicle use. An estimated 116,758 sites might be present within this area. Impacts from off-highway vehicle use include partial or total destruction of features and sites as a direct result of driving across them, destruction of sites and features as a result of increased erosion associated with changes in vegetation/ground cover, and a rise in illegal excavation and collection activities associated with increased access into previously undisturbed areas. During competitive events, sites located in pit areas and along the raceway might be partially or wholly disturbed, and collection of surface artifacts by spectators could be expected. Restricting off-highway vehicle use to existing roads, trails, and washes on a seasonal basis, or by type of user on 820,480 acres might afford some slight degree of protection to approximately 19,800 sites. In this instance, direct impacts of off-highway vehicle use would be confined to areas of existing disturbance, but a rise in illegal excavation and collection activities resulting from increased access to previously inaccessible areas is expected. Closure of 430,290 acres to all vehicle uses would provide some protection for approximately 10,384 sites from impacts noted above.

Designation of 64,451 acres as Special Recreation Management Areas (SRMAs)at Crescent Sand Dunes, the Lunar Crater Volcanic Field, Rhyolite, and the Railroad Valley Wildlife Management Area, might result in increased protection for an estimated 1555 sites owing to the more intensive management these areas would receive. However,

management strategies focused on increasing visitation to SRMAs could result in an overall negative effect on cultural properties. If Fish Lake, Moores and Pritchards Stations were acquired and designated SRMAs, two known historic sites and approximately five additional cultural resources would be brought under federal control, thereby protecting them from development. However, the net effect on cultural resources in these areas could be negative due to rises in vandalism, illegal collection, and excavation associated with increased visitation. Regular surveillance and monitoring associated with management of the SRMAs would have a beneficial impact by discouraging destructive activities. Designation of an SRMA at Rhyolite would allow for additional signing and development of other interpretive and visitor facilities in conjunction with a local concerned citizens group. Development of interpretive facilities at this site is expected to result in a decrease in vandalism and illegal collection.

Designation and development of Back-Country Byways in the Emigrant Pass, Lunar Crater Volcanic Field, and Morey-Hot Creek areas would result in increased visitation. An increase in the number of visitors could be expected to result in a rise in incidents of vandalism, illegal excavation and collection of an undetermined number of sites.

From utility corridors:

The designation of 668 miles of utility corridors would not directly impact cultural resources. However, impacts to an undetermined number of cultural resources would result if one or more major power lines were constructed within these corridors. Because each corridor is three miles wide, impacts directly associated with construction could be expected to be minimal as relocation of towers and access roads could be adjusted to avoid cultural properties. However, construction of service roads within utility corridors would increase access into previously inaccessible areas, leading to a rise in incidents of vandalism, and illegal excavation and collection.

From mineral exploration and development:

Impacts to cultural resources from fluid mineral leasing and geophysical exploration include destruction of some sites during construction of well pads, access roads, and other facilities. Furthermore, damage to sites from erosion in areas where vegetation has been altered or destroyed (sites in sand dunes are particularly vulnerable to this type of impact) could be expected. Other possible impacts include destruction of or alterations in the character of artifacts and features from accidental spills of petroleum products and/or other substances thereby precluding some kinds of analysis such as Carbon-14 dating and blood residue studies. Vandalism and illegal excavation and collection also seem to be associated with increased access. It is projected that a total of 944 acres would be directly impacted as a result of well pad, access road and facility construction. There might be 32 sites within this area. A total of 3,240 acres would be closed to fluid mineral leasing and geophysical exploration, and no surface occupancy associated with these activities would be allowed on an additional 53,801 acres. An estimated 1,938 cultural resources might be afforded some protection from impacts related to fluid mineral exploitation as a result of these restrictions.

Impacts from locatable mineral development include partial or complete destruction of cultural properties resulting from exploration, increased erosion, mine development, and construction of mills and other facilities. Cultural properties might also be buried under mountains of waste rock while visible features are more likely to be illegally collected and excavated. Historic mining sites (e.g., townsites, isolated homesites, mills, adits, and trash dumps) are particularly vulnerable as much mineral development occurs within historic mining districts. Prehistoric quarry sites are often found in areas of heavy mineralization, and are therefore subject to intense impact from mineral development. An estimated total of 24,650 acres would be developed as a part of the locatable minerals program. This has the potential for adversely affecting an estimated 538 sites. A total of 11,297 acres of existing withdrawals from

mineral entry would be continued, and 28,771 additional acres would be proposed for withdrawal. This would afford some protection to approximately 874 sites.

Impacts associated with mineral materials development include partial or complete destruction of cultural properties and paleontological localities. One thousand acres are projected for mineral materials development. This has the potential for affecting 24 cultural properties. A total of 57,041 acres would be closed to sale of mineral materials. This would eliminate impacts from this source at an estimated 1,377 sites.

Impacts to cultural resources from development of non-energy leasable minerals include complete or partial destruction of sites associated with construction of access roads, evaporation ponds, and other facilities, erosion or burial of sites and features in locations where vegetation has been disturbed or removed, and a rise in the number of incidents of vandalism, and illegal excavation and collection as a result of increased access. Cultural properties situated in valley bottoms and along valley margins or old lake shores are particularly vulnerable. An estimated 7,750 acres would be developed for non-energy leasable minerals. This has the potential for affecting an estimated 187 cultural properties. A total of 57,041 acres would be closed to non-energy mineral leasing, which would eliminate impacts from this source to an estimated 1,377 sites.

IMPACTS TO THE LANDS AND RIGHTS-OF-WAY PROGRAMS

From wildlife habitat management:

Actions proposed for wildlife habitat management would result in the creation of 73,840 acres of right-of-way avoidance areas for the protection of deer winter range, sage grouse habitat, bighorn sheep habitat, and bighorn sheep lambing grounds. If rights-of-way or other discretionary lands actions were to be allowed within these areas, the authorizing documents would include seasonal restrictions to protect the area's special values. Little interest has been expressed in land use authorizations within these areas. If application is made, it is doubtful that the imposition of seasonal restrictions would cause a hardship. Therefore, the creation of these avoidance areas would have no impact on the Lands and Rights-of-Way Programs.

No new sites for communication facilities would be authorized within bighorn sheep habitat. BLM already has developed communication sites on in bighorn sheep habitat on Bare Mountain (near Beatty), Magruder Mountain, Palmetto Mountain, Monte Cristo Range, Sawtooth Peak, and Montezuma Peak. New communications facilities could be authorized at these developed sites. Communication site right-of-way exclusion areas would be established within bighorn sheep habitat in the Silver Peak Range, Grapevine Mountain, Hot Creek Range, Lone Mountain, Palisade Mesa, and the Quinn Canyon Range. No interest has yet been expressed in developing communications sites in any of these areas except Lone Mountain. However, this could cause a hardship for the communications industry. Restriction of expansion opportunities might eventually lead to overcrowding on existing sites.

From special status species management:

Rights-of-Way would be excluded from 70,600 acres of washes within desert tortoise habitat unless the rights-of-way are compatible with the desert tortoise. This would impact the Lands and Rights-of-Way Programs because washes are often the location of choice for road rights-of-way, particularly sandy washes which are desirable tortoise habitat.

A 40 acre right-of-way avoidance area at North Spring and a 40 acre right-of-way avoidance area at Reynolds Spring would be designated. These areas are so small that their creation would have no impact to the Lands and Rights-of-Way Programs.

From wild horse and burro management:

Land disposals would only be allowed within HMAs if there would be no adverse impacts to wild horses and burros. This could impact the Lands and Rights-of-Way Programs because most disposals would result in an influx of people which could have an adverse impact on wild horses and burros.

From cultural resource management:

A 40 acre right-of-way avoidance area would be designated at the Moores Station Petroglyphs and a 40 acre right-of-way avoidance area would also be designated at the Mountain View Arrastra. If any rights-of-way or other discretionary land use authorizations were to be allowed within these areas, stipulations would be included in the authorizing documents to protect the areas' special values. Because of the areas' small size, there would be no impact to the Lands and Rights-of-Way Programs.

A total of 821 acres of right-of-way avoidance areas would be designated at Rhyolite, Cane Man Hill Petroglyphs, Tybo Charcoal Kilns, and McIntyre Charcoal Kilns. Because of the small size of these areas and their distance from population centers, the creation of these avoidance areas would have no impact on the Lands and Rights-of-Way Programs.

From lands and rights-of-way:

A wide range of opportunities for meeting community expansion needs, disposing of unmanageable parcels, resolving trespass, and expanding rural landholdings would result.

There would be no disposal of the 3,840 acres where agricultural entry has been applied for on lands within the Military Training Route immediately north of the Tonopah Test Range because of the negative effects of low level, high speed flights on human beings and animals.

If the original entrant or the entrant's assignee fails to prove up under the agricultural land laws on the 28,314 acres identified for agricultural entry, the land would no longer be available for disposal under the agricultural land laws, but it would be available for disposal under the sale and exchange authorities. This would have a positive impact on the Lands Program because it would limit the amount of time and money expended on disposals under the agricultural land laws, and it would allow for the efficient disposal of lands.

A total of 241,041 acres would be included in right-of-way avoidance areas for the support of other resource programs. Because most of these areas are remote and the demand for rights-of-way or other discretionary lands actions is small to non-existent, this would have a negligible effect on the Lands and Rights-of-Way Programs.

No new roads for communication facilities would be allowed within bighorn sheep habitat. Bighorn sheep habitat encompasses many of the highest peaks within the resource area. Making these peaks available for the development of new communication sites with helicopter access only would restrict the potential for growth in the communications industry in the resource area and would consequently impact the Lands and Rights-of-Way Program.

All other lands within the resource area would be open to consideration for linear or areal rights-of-way, leases, and permits unless there was a conflict with other resource values that could not be resolved. Even with all of the restricted areas this alternative proposes, there would still be nearly six million acres available for consideration for rights-of-way and other discretionary lands actions. This alternative would have a beneficial impact on the Lands and Rights-of-Way Programs.

A total of 38,380 acres of withdrawals from mineral entry would be requested. Given the small size of these areas, their withdrawal should have little impact on the Lands and Rights-of-Way Programs with the exception of the proposed withdrawal from mineral entry of 490 acres comprising the Amargosa-Oasis ACEC. This area is comprised of several

parcels which because of their location and size are difficult and uneconomic to manage as part of the public lands. Retaining them and attempting to manage them more intensively than they are presently managed would be costly and burdensome to the Lands Program. The proposed withdrawals of Gold Point and Rhyolite would greatly facilitate management of those areas.

From ACECs:

The Lunar Crater Volcanic Field would be designated as an ACEC. This designation would create a 39,680 acre right-of-way avoidance area. If any rights-of-way or other discretionary land use authorizations were to be allowed within the ACEC, stipulations would be included in the authorizing documents to protect the area's special values. There would be no impact to the Lands and Rights-of-Way Program.

The Amargosa-Oasis area would be designated as an ACEC. This action would create a 490 acre right-of-way avoidance area. No rights-of-way or other discretionary lands actions would be allowed which were not compatible with the area's special values. Several of the parcels included in this ACEC lie between private land and US 95 and are, therefore in high demand for rights-of-way of all descriptions. This action could severely restrict development in the Beatty area.

Cane Man Hill would be designated as an ACEC. This action would create a 680 acre right-of-way avoidance area. If any rights-of-way or other discretionary land use authorizations were to be allowed within the ACEC, stipulations would be included in the authorizing documents to protect the area's special values. Owing to the small size and remote location of this ACEC, there would be no impact to the Lands and Rights-of-Way Programs.

Lone Mountain would be designated as an ACEC. No new communication site facilities would be allowed within this ACEC. This action might impact the communications industry because it would require them to use other sites. There has been no interest expressed in other land use authorizations within this area.

An ACEC would be designated in Railroad Valley. This action would create a 15,470 acre right-of-way avoidance area. If rights-of-way or other discretionary lands actions were to be allowed within it, the authorizing documents would include stipulations for the protection of the area's special values. It is not expected that the imposition of such stipulations would create a hardship especially because the proposed utility corridor below the Grant Range would be excepted from the avoidance area. There would be no impact on the Lands and Rights-of-Way Programs.

A 61 acre ACEC would be designated in Rhyolite to protect historic structures. This designation would create a right-of-way avoidance area. No land uses would be authorized which were not compatible with the area's special values. The Small Tract classification on the four acre site of the Bottle House would be terminated, and the entire 61 acre area would be withdrawn from mineral entry. This action would greatly enhance management of the area even though it would not eliminate existing claims.

The Tybo-McIntyre Charcoal Kilns would be designated as an ACEC. This would create an 80 acre right-of-way avoidance area. If rights-of-way or other discretionary lands actions were to be allowed within the area, stipulations would be included in the authorizing documents for the protection of the area's special values.

From recreation:

The establishment of Special Recreation Management Areas would result in a total of 9,240 acres of right-of-way avoidance areas at Clayton Valley Sand Dunes and the Crescent Sand Dunes.

From mineral exploration and development:

Much of the land identified for disposal under the sale and exchange authorities is encumbered with mining claims and could not be disposed of unless those claims are extinguished.

IMPACTS TO UTILITY CORRIDORS

From lands and rights-of-way:

Some of the lands identified for disposal at Berlin, Carver's, Tonopah, Nyala, Blair, Coaldale, Silverpeak, Goldfield, Scotty's Junction, Springdale, and Beatty are included within the proposed utility corridors. This might lead to conflicts as these lands are transferred into private ownership. Private landowners might object to corridors near their property and might resist granting easements for commodity transportation and utility transmission facilities. However,it is doubtful that all of the land identified for disposal would actually be conveyed into private ownership.

From utility corridors:

The utility corridor designations proposed would maximize the opportunities for the development of major rights-of-way.

IMPACTS TO RECREATION RESOURCES

From visual resource management:

Managing the five scenic highways listed in the current *Esmeralda-Southern Nye RMP* to retain visual values might limit where and how competitive events cross these highways. This occurs on an individual basis as applications for competitive events are received.

The scenic quality of the Lunar Crater SRMA would be enhanced by the increase in size of the protected area from 2,560 to 39,680 acres allowing the inclusion of Black Rock Lava Flow and Easy Chair Crater. This means that all significant features of the SRMA would be managed for their scenic quality. A restriction on vehicle travel to existing roads and trails coupled with a withdrawal from mineral entry, no surface occupancy leasing restriction and denial of nonconforming discretionary uses would provide excellent long term protection for this area.

From wildlife habitat management:

The seasonal restrictions on competitive events between January 15 and May 1 would have no impact because the areas restricted are easily avoided.

From special status species management:

All vehicle use within the 70,600 acres of identified tortoise habitat would be impacted by a use restriction to existing roads and trails and a closure of the washes to use. Because of the size of the resource area, the impact is not so much a matter of acres (70,600 is about 1.1 percent of resource area) as the specific location surrounding the town of Beatty. Competitive events would still be authorized on the existing cleared course.

From riparian habitat management:

Improvement of riparian habitat benefit recreation resources by improving trout habitat and increasing fishing opportunities. An improved mix of recreational opportunities for the public would result. The closing of approximately 800 acres along streams and riparian areas to vehicle use would probably provide more long term benefits in terms of improved recreation opportunities than the loss of .0001 percent of the resource area to vehicle use.

From forestry and vegetative products:

Restricting all off-highway vehicle use on 100,000 acres in the Goldfield Joshua tree area to existing roads and trails would expand OHV use limitations to include both casual and competitive uses. This would limit the possible travel routes around Goldfield.

Establishment of greenwood, and Christmas tree cutting areas could lead to the loss of semi-primitive recreation opportunities on

1,000 acres through the establishment of new roads and trails.

From cultural resources management:

Conflicts between cultural resources values and proposed recreation activities such as competitive off-highway vehicle events would be mitigated through the environmental and Section 106 process on an individual basis, therefore, no impacts are anticipated.

From lands and rights-of-way:

Disposal of 297,000 acres would have little impact on recreation resources. Most of the lands to be disposed of are located in the rural or roaded natural opportunity settings closely associated with towns, ranches and agriculturally developed and altered areas.

Acquisitions at Moores and Pritchards Stations (160 acres each), and Fish Lake (600 acres) would benefit management of these areas as SRMAs and the Morey-Hot Creek Back Country Byway. Managing the Lunar Crater Volcanic Field and the Railroad Valley ACEC as rights-of-way avoidance areas would protect existing scenic values and recreation opportunities.

From ACECs:

The proposed management guidelines and ACEC designations at Lunar Crater Volcanic Field, Railroad Valley, Rhyolite, and Tybo-McIntyre Charcoal Kilns and would benefit the management of the areas as SRMAs. Designation of the ACECs as limited to existing roads and trails would have minimal impact on recreation resources particularly off-highway vehicle use. These areas are scattered in small pieces within the resource area and should not impact overall off-highway vehicle use to any measurable degree.

From recreation:

Lands open to unrestricted off-highway vehicle travel would be reduced by half to approximately 50 percent of the resource area.

Limiting vehicle use in the Lunar Crater Volcanic Field SRMA to existing roads and trails would not impact SRMA management and would enhance recreational activities by retaining naturalness and scenic values.

Both primitive and semi-primitive opportunity settings would be preserved by closing these areas to off-highway vehicle use. Because these are classified largely according to their distance from roads and other human activities, any intrusion into these areas, such as off-highway vehicle events or casual driving, would result in the downgrading of the opportunities offered by primitive, semi-primitive non-motorized and semi-primitive motorized lands to the next lower opportunity class.

From WSAs:

Interim management of WSAs requires limiting vehicle use to existing roads and trails on 634,815 acres. This is an interim action pending final Congressional resolution of the wilderness designation issue. The interim restriction could remain in place for many years but would cease to apply when lands are released from wilderness study status by Congress. WSA lands designated as wilderness would be closed to all motorized and mechanical uses.

From mineral exploration and development:

The no surface occupancy proposals would benefit recreation resources by retaining and enhancing natural environments and scenic features in some of the SRMA/ACECs and wildlife areas by providing for the continued existence of a range of recreation opportunities.

A total of 90,370 acres inventoried as primitive in character and 339,120 acres semi-primitive would not be withdrawn from mineral entry, and would be subject to loss due to roads associated with mineral exploration and development. The withdrawal of portions of the Lunar Crater, Lone Mountain, and Railroad Valley areas from mineral entry would benefit recreation resources by retaining and

enhancing natural environments and scenic features and providing for the continued existence of a range of recreation opportunities.

IMPACTS TO FLUID MINERALS

From wildlife habitat management:

Mineral leasing would be positively impacted by opening areas previously closed and using seasonal restrictions to protect wildlife values. A seasonal restriction on fluid minerals would apply to that land for the life of the plan. If an oil field or geothermal field was discovered in an area of seasonal restriction, that field would have to go to a maintenance status during the restricted season. Seasonal restrictions would result in the disruption of drilling activities and require a firm drilling schedule. Seasonal restrictions are estimated to impact one geothermal well requiring the well to be scheduled to avoid the restriction.

Opening areas previously closed and using a seasonal restriction in bighorn sheep lambing habitat is very beneficial to the oil and gas program. The high potential land could be leased for oil and gas and the potential oil field, with an estimated yield of five million barrels, could be developed. Oil development would be restricted during the lambing season which would have an adverse affect.

From riparian habitat management:

A negative impact would result on 3,480 acres of land with a high potential for oil and gas in the Railroad Valley ACEC where a no surface occupancy stipulation would be required and a right-of-way avoidance area would be designated. Directional drilling would increase costs by up to 50 percent to drill a well compared to standard vertical hole drilling. The area near Kate Springs Oil Field would be the most adversely affected high potential parcels of land designated for stipulation against surface occupancy. An estimated four wells would not be drilled because of this stipulation.

Some lands which presently have stipulations against surface occupancy (480 acres in Railroad Valley), would be opened without restriction. This would allow for more economical drilling and more efficient development of the oil and gas resource.

From cultural resource management:

Berlin Town Site is closed to mineral leasing. Mountain View Arrastra, Moores Station Petroglyph, Jumbled Rock Petroglyph, Cane Man Hill, Tybo-McIntyre Charcoal Kilns, and Rhyolite would be available for leasing with a stipulation against surface occupancy. Since these areas are of low potential for fluid minerals the effect is negligible.

Adverse impacts to the Trap Springs oil field depend on how the section 106 process is implemented, and what requests are made of the oil companies to mitigate cultural resources. The continued closure of the gravel bar road would result in continued use of less desirable access to transport oil from the Grant Canyon and Eagle Springs field to the refinery.

From ACECs:

The stipulation against surface occupancy on 39,680 acres in Lunar Crater ACEC would require directional drilling. The size of the area affected would cause exploration of the center of the parcel to be infeasible.

From recreation:

Primitive and semi-primitive non-motorized areas (429,490 acres) would have stipulations applied to the leases requiring reclamation to a naturally appearing condition upon completion of a project. The fluid mineral potential on these lands is 37,500 acres of high potential and 201,000 acres of medium potential. It is estimated that the restrictions would be applied to the drilling of 25 oil wells during the life of the plan.

Table 4 C
AVAILABILITY OF LANDS FOR FLUID MINERAL LEASING RELATIVE TO RESOURCE POTENTIAL

MANAGEMENT CATEGORIES	LOW POTENTIAL ACRES	MODERATE POTENTIAL ACRES	HIGH POTENTIAL ACRES	UNKNOWN POTENTIAL ACRES	TOTAL ACRES
OPEN SUBJECT TO STANDARD TERMS AND CONDITIONS	359,260	1,235,400	521,900	3,886,516	6,003,076
OPEN WITH MAJOR RESTRICTIONS (NO SURFACE OCCUPANCY)	5,540	43,000	4,000	1,261	53,801
OPEN WITH MINOR RESTRICTIONS (SEASONAL RESTRICTIONS)	12,760	16,000	0	2,200	30,960
CLOSED TO LEASING (DISCRETIONARY)	0	0	0	0	0
CLOSED TO LEASING (NONDISCRETIONARY) [1]	0	2,560	0	704	3,264

[1] Assumes that lands in WSA status would be returned to multiple use.

From fluid minerals management

The exploration and development of fluid minerals would be restricted by other programs. These restrictions are totaled in Table 4 C.

IMPACTS TO LOCATABLE MINERALS

From wildlife habitat management:

A 1,440 acre withdrawal in bighorn sheep lambing grounds would remove this land from further mineral exploration and development. The Stonewall Falls withdrawal is located in a moderate mineral potential area. It is estimated that two plan level exploration operations would be precluded in the life of the plan (see the reasonably foreseeable development (RFD) scenarios in this chapter). Off site mitigation would be a cost incurred by the larger mining companies. Additional costs would be incurred on projects reaching a prescribed acreage of habitat disturbance (see Appendix 4).

From special status species management:

Designation of 490 acres as the Amargosa-Oasis ACEC to protect the Amargosa toad and Oasis Valley speckled dace would require all exploration to be conducted under a Plan of Operation and mandatory bonding. It is estimated that one operation could be impacted. The withdrawal of 490 acres would remove this area from future mineral location.

From riparian habitat management:

Closure of trout streams to off-highway vehicle use would result in the mandatory filing of a Plan of Operation for exploration. One permit

would be adversely impacted during the life of the plan.

The designation of 15,470 acres at Railroad Valley as an ACEC would reduce the withdrawal to 3,040 and add 440 acres of new withdrawal. This would result in reduction in size of the existing withdrawal. The increased acreage would be open to exploration and development. All exploration in the ACEC would require a Plan of Operation and mandatory bonding. This would have a positive impact on locatable minerals.

From cultural resource management:

Designation of 680 acres as the Cane Man Hill ACEC would result in notice level exploration being converted to a Plan of Operation and mandatory bonding. This would impact one operation specifically. This alternative would limit future management options when the area is withdrawn from mineral entry. Claims currently exist in the area.

The designation of 61 acres as the Rhyolite ACEC would require all hardrock exploration on claims with valid existing rights to be bonded and work under a Plan of Operation. This is expected to impact one operation yearly. The withdrawal from mineral entry might limit future exploration in the area to the exercise of valid existing rights and require a determination of mining claim validity.

From lands and rights-of-way:

The withdrawal of the Gold Point townsite would adversely affect the current claimants by requiring them to prove discovery under the mining law. The resulting examination would, however, allow BLM to proceed with solving a long standing occupancy cases. Currently four operators claim rights to occupy land under the mining laws. The withdrawal would allow BLM to solve ownership rights without further interveners. In addition, each withdrawal reduces the land base from which to explore, develop and mine. This land is permanently lost to the locatable minerals industry.

From ACECs:

Designation of 39,680 acres at Lunar Crater as an ACEC would require all locatable exploration to be done under a Plan of Operation with a mandatory reclamation bond. This is expected to adversely impact two operations on the north side of the ACEC. Validity exams might be required prior to Plan approval. This would impact both the operator and BLM with higher costs to complete the validity exams and complete Plan processing.

Designation of Lone Mountain as an ACEC would require all exploration in the ACEC to be done under a Plan of Operation with mandatory bonding. Two operations yearly are expected to be impacted.

From recreation:

The closure of 430,290 acres to off-highway vehicles limits locatable mineral exploration. In these areas a Plan of Operation is required for mineral activities other than casual use. The proposed closure would require converting 10 notices per year to Plans of Operation with mandatory bonding.

Requiring reclamation to a naturally appearing condition in Primitive and semi-primitive non-motorized areas (429,490 acres) would be a burden on mineral exploration and development.

IMPACTS TO MINERAL MATERIALS

From cultural resources management:

Cane Man Hill would be removed from the land base from which to sell common variety mineral material. This location is known to contain basalt boulders which are potentially valuable. It is estimated that one potential sale would be lost during the life of the plan if an acceptable alternative site could not be found.

From ACECs:

Lunar Crater would remain closed to mineral material sales. Three potential sales per year would be lost by this restriction.

From recreation:

No sales of sand from Crescent Dunes nor Clayton Valley Dunes would be allowed. This would have only a minor impact.

IMPACTS TO NON-ENERGY LEASABLE MINERALS

From riparian habitat management:

The designation of the Railroad Valley ACEC (15,470 acres) would potentially interfere with brine-type development. The 3,480 acres on which there are restrictions against surface occupancy does not preclude solid leasable development. However, it is not likely that a brine type development would be considered compatible with the ACEC. It is estimated one brine type mine would be prevented from development.

IMPACTS TO ECONOMIC CONDITIONS

From livestock grazing management:

No changes in the administration of grazing on public lands would be introduced, and the livestock grazing program would continue to be guided by previous planning documents. The initial stocking level of 162,766 AUMs has been determined on the basis of previous land use plans together with adjustments based on evaluation of monitoring data.

Of the total 296,994 acres of public land identified for potential disposal, 289,726 acres are currently available grazing lands, representing approximately 14,500 AUMs. The total loss of the forage provided by this acreage would have a significantly adverse economic impact on the livestock industry in the area, and render severe economic hardship on up to five ranch operators. Gross income to the livestock industry would be reduced by about six percent, or $300,000; and ranch operators would suffer a loss in net ranch income estimated at $76,125.

While this relatively small economic impact would have no significant effect on the regional economy, ranch operators who may be affected would be sorely constrained in their operating discretion, and forced to consider reductions in herd size or the purchase of hay or private grazing to offset the loss of public land forage. Ranchers who are unable to adjust their operations in this manner may be forced to consider going out of business due to the added costs.

It should, however, be noted that the lands proposed for disposal are identified as such to facilitate any potential transfer or disposal action that might come about in response to an identified public need. It is highly unlikely that the full 296,994 identified acres would be successfully transferred to private or local government ownership, or that a specific purpose or useful and productive application for all these lands would become manifest.

Therefore, the estimation of potential effects on ranch operations represents only a "worst case" scenario. The degree to which ranch operations are actually affected would depend, of course, on which particular acreage, and how much of that acreage, may be sought by private or public entities for what may be deemed a higher and better use. The determination of economic impacts which might result from potential land transfer proposals can only be considered speculative and indeterminate at this time.

From lands and rights-of-way:

This alternative identifies a total of 297,000 acres of public lands for discretionary disposal to private or local government ownership. While it is unlikely that the total identified acreage would be successfully transferred within the 20-year period, changes within the land ownership pattern which might occur could alter the tax base of the counties to a significant degree. BLM Payments In Lieu Of Taxes would be adjusted accordingly.

In some cases, local governments could suffer adverse financial effects from the transfer of these lands to private ownership, should the tax revenue fall short of the cost of providing any necessary public services. The provision of these services to new areas is likely to require greater capital outlay, and to be less cost efficient, than those contained within existing communities.

From utility corridors:

Because the procedures for right-of-way approval are simplified within designated corridors, the establishment of corridors would result in some reduction of right-of-way planning costs to utility companies. On the other hand, since flexibility in future right-of-way location is limited within designated corridors it is possible that transmission lines could be longer. This might result in more frequent power losses and greater operating costs. In addition, utility system reliability might be affected because designated corridors provide limited opportunity for the separation of transmission lines.

Minor reductions in the value of private lands along future transmission lines could occur. But since the appropriate corridors would be designated well in advance, future development plans could incorporate any necessary considerations. Because transmission lines affect the scenic tranquility of adjacent lands, they are perceived as reducing the value of these lands. Such effects upon land values would likely be limited to the short term, as there is no clear evidence that long term land values are affected by transmission lines (Holberger, et al, 1975).

From mineral exploration and development:

No significant economic impact, either beneficial or adverse, to the minerals industry or to the local economy. Any minerals exploration or development is likely to benefit the regional economy, in terms of income and employment, and minerals development potential under each of the alternatives remains largely unfettered.

The certain stipulations and restrictions that are prescribed, under each of the alternatives provide different levels of constraint for resource protection which are different only in degree. In some cases these constraints moderately increase the costs of exploration and development that may be born by the minerals industry. Leasing restrictions, for instance, have an effect upon oil and gas exploration costs due to the constraints such restrictions impose on scheduling and operating efficiency. No evidence is available to indicate that these additional costs have been sufficiently prohibitive to discourage exploration; and no significantly adverse economic effects would result from such lease conditions.

Any increases or decreases in operating costs, that might result from reasonable and moderate resource protection measures, are not likely to have any effect on an individual operator's decision to undertake exploration in a particular area. Such costs are incidental, not prohibitive, and may be found to exist, in one form or another, in every exploration area. Operator's generally consider such costs to be a normal part of the cost of doing business.

Even in those alternatives which offer the greatest potential for operating economies in exploration, development, and production, such economies are not likely to be of sufficient significance to provide inducement to expanded exploration and development activities.

The major problem underlying the economic evaluation of minerals is the great uncertainty regarding the existence of mineral deposits in sufficient quantity and quality to be commercially feasible. In addition, long-range mineral resource evaluation and market demand estimation are at best speculative. Both mineral resource evaluation and development are directly dependent upon market demands that may be regional, national, or worldwide in scope.

CUMULATIVE IMPACTS

Cumulative impacts result from the incremental impact of the actions, decisions, and projects when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative impacts could result from individually minor, but collectively significant actions taking place over a period of time.

LIMITS OF ANALYSIS OF CUMULATIVE IMPACTS AND ASSUMPTIONS FOR ANALYSIS

The time frame for analysis is 20 years, which is the anticipated life of the RMP.

The analysis should summarize the increase or decrease in the effect, size or quantity of impacts on the environment from reasonably foreseeable future actions.

All the impacts are on lands and resources within the resource area boundaries.

REASONABLY FORESEEABLE ACTIONS

Reasonably foreseeable future actions are projects or actions undertaken by any agency or individual that impact public or private lands. The scenarios are based on current trends and an optimistic view for economic development projected into the future. The following projects and actions are identified and considered to be relevant to the assessment of cumulative environmental impacts:

Habitat Management Plans

The magnitude of the impacts from implementing wildlife habitat management plans is not known. However, the number of wildlife guzzlers to be constructed would encompass a total of less than 250 acres, and the expected number of spring developments and exclosures would cover an area of less than 300 acres. In addition, the total of all projects planned in HMPs would cover less than one percent of the resource area.

Woodland Products

The demand for firewood has averaged 675 cords each year for the past three years. Sustained yield for firewood is estimated at 1,000 cords. It is anticipated that future demand would increase until the sustained yield is authorized. A total of 20,000 cords would be sold during the life of the plan.

Rangeland Improvements

There would be 39,785 acres of short term surface disturbance of which 629 acres would continue over the long term from proposed range improvements.

Land Tenure Adjustments

Historically, only seven percent of agricultural entries have gone to patent. For the sake of cumulative analysis it is projected that seven percent of the land identified for agricultural entry would be patented during the life of the RMP. In addition, lands are also transferred into private ownership through mineral entry patents. Since 1981 there have been 11,836 acres patented. It is anticipated that this trend would continue.

There were approximately 4,116 acres identified for possible disposal in the 1981 *Tonopah MFP* of which approximately 1,412 acres have been sold. There was a pool of 47,479 acres identified for possible disposal in the 1986 *Esmeralda-Southern Nye RMP* of which approximately 251 acres has been sold.

For the purposes of cumulative analysis it is assumed that disposal of public lands would continue at the same rate in proportion to the amount of land identified for disposal.

Utility Corridors

It is anticipated that a large electric transmission facility would traverse the resource area during the life of the plan.

For the purposes of cumulative analysis it is assumed:

a) generally, right-of-way requirements for a 500 kilovolt (kV) transmission system supported by steel towers is 100 to 250 feet wide.
b) the total length of the right-of-way would be 200 miles, and would enter the resource area at its east boundary in Railroad Valley and exit at the south boundary near Beatty.
c) the access road would result in 400 acres of surface disturbance.
d) towers would range from 100 to 150 feet in height.
e) the span between towers would vary from 500 to 2,500 feet.
f) surface disturbance at each tower site would be approximately one-fourth of an acre or a total of 175 acres of surface disturbance which would be revegetated.
g) there would be 700 towers.

Las Vegas Valley Water District (LVVWD) Water Filings

LVVWD water rights applications to export ground water from the eastern portion of the resource area are being considered by the Nevada State Engineer. The preliminary schedule for development of the project, if the water rights were granted, would not start construction in the Railroad Valley area until 2025. Therefore, development is beyond the life of this plan and would not be discussed in this cumulative impacts section.

Reasonably Foreseeable Development Scenario for Oil and Gas

Exploration for oil and gas would undoubtedly continue in the future. This exploration would include seismic surveys, wildcat drilling and development drilling. It is anticipated that 30 wildcat wells would be drilled in the next 15 years and these would lead to the discovery of two additional oil fields. One field would have seven producing wells (Kate Springs Field Model) and the other would be larger and have 40 producing wells (Trap Spring Field Model). Each well would produce between 0.25 and 1 MMBO in its lifetime. It is possible some wells could have a production span exceeding 35 years. Table 4 D summarizes the potential for undiscovered recoverable petroleum resources from the first two types of plays for fields containing greater than 1,000,000 barrels of oil in the Eastern Great Basin Province east of Longitude 117 Degrees W.

The existing surface disturbance related to oil and gas activity is 267 acres. It is anticipated that additional drilling within known oil fields and between producing wells and exploration drilling within one or two miles of the existing oil fields would also be conducted in the future. Existing fields and number of wells are: Trap Spring 25, Kate Spring 10, Eagle Spring 8, and Grant Canyon 6 for a total of 49 wells. It is assumed that: 1) drill pads would be 200 x 250 feet (56 acres) with a two and one-half foot layer of gravel, 2) each well would require 1,500 feet of access road 30 feet wide (51 acres) with two feet of gravel, 3) all gravel would be obtained from local pits. Assuming that the material would be removed to a depth of 12 feet (20 acres), 4) an additional two miles of pipeline would be required within the fields (this disturbance would be 15 feet wide and total four acres), 5) tank batteries, if required, would be located on existing pads. The total disturbance would be 131 acres.

It is anticipated that 30 wildcat wells would be drilled. The following assumptions are made: 1) drill pads would be 200 x 250 feet (34 acres) with a two and one-half foot layer of gravel, 2) two miles of 30 foot wide access road with two feet of gravel would be required for each well (218 acres), 3) all gravel would be obtained locally and pits are assumed to be 12 feet deep (44 acres). The total disturbance would be 296 acres.

Table 4 D
POTENTIAL FOR UNDISCOVERED PETROLEUM PRODUCTS

Oil Play	Area (Square Miles)	Recoverable Oil Million Barrels	Recoverable Gas Billion Cubic Feet
Tertiary Unconformity	35,000	220	102
Upper Paleozoic	55,000	49	67

It is assumed that there would be two additional oil fields discovered in the resource area. These fields are hypothesized to be equivalent in size and surface disturbance to the Kate Spring and Trap Spring Oil Fields.

For an oil field equivalent to the Kate Spring Oil Field the following assumptions are made: 1) twenty-two wells would be drilled and there would be seven producing wells, three injection wells and 12 plugged and abandoned wells, 2) tank batteries would be placed on existing drill pads, 3) this field would require a major access road six miles long and 50 feet wide (36 acres) with three feet of gravel, 4) eight miles of 30-foot-wide service roads (29 acres) would be required with two feet of gravel, 5) drill pads would be 200 x 250 feet (25 acres) with a two and one-half foot layer of gravel, 6) two miles of pipeline would be required with a disturbance 15 feet in width (4 acres); 7) gravel would be obtained locally, and the material would be removed to a depth of 12 feet (19 acres). The total disturbance would be 113 acres.

For an oil field equivalent to the Trap Spring Oil Field the following assumptions are made: 1) eighty wells would be drilled and there would be 40 producing wells, 10 injection wells and 30 plugged and abandoned wells; 2) tank batteries would be placed on existing drill pads; 3) a major access road six miles long and 50 feet wide (36 acres) with three feet of gravel would be required, 4) drill pads would be 200 x 250 feet (92 acres) and would require two and one-half feet of gravel, 5) five miles of pipeline would disturb a 15 foot width (9 acres), 6) there would be 21.5 miles of access roads 30 feet wide (78 acres) with two feet of gravel, 7) all gravel would be obtained from a local source, the material would be removed to a depth of 12 feet (42 acres). The total disturbance would be 257 acres.

It is anticipated that a pipeline would be built from one of the new oil fields to the existing refinery in Railroad Valley. The pipeline would be 25 miles long and would result in an additional 47 acres of surface disturbance, including disturbance at the gravel source.

Because of the possibility of increased production, it is anticipated that the refinery in Railroad Valley would require expansion. The expansion would result in an additional 10 acres of surface disturbance.

The final reclamation of the oil fields would produce a significant amount of both solid and liquid debris and authorized disposal sites would be required. There would need to be three solid disposal sites, two encompassing 30 acres to accept non-hazardous industrial waste, and one 30-acre disposal site which would accept oil contaminated sand and soil.

The total disturbance from future development would be 944 acres, assuming no reclamation. With a total existing disturbance of 267 acres, the 944 acres of additional disturbance would result in a total disturbance of 1,211 acres.

The existing disturbance equals 267 acres and adding to the 944 acres would equal a total cumulative disturbance of 1,211 acres.

Reasonably Foreseeable Development Scenario for Geothermal Resources

It is anticipated that two 15 MW geothermal power plants would be developed in the resource area in the future. Each power plant, assuming development from an undiscovered resource, would require three to seven years from initial interest and exploratory drilling to initial power production. The plant would operate for 15-30

years and would proceed through the following sequence: 1) 60-80 gradient holes would be drilled in the exploration phase, each 500 to 2,000 feet deep, 2) seven production wells would be drilled, each 10,000 feet deep, 3) feasibility and testing studies would be conducted, 4) site facilities and a power line would be constructed simultaneously.

Geothermal power plants are generally fairly compact and do not have a large impact on the environment. In the scenario discussed above the total surface disturbance would be distributed as follows: a) gradient holes (no disturbance); b) production wells, access roads and drill sites (40.0 acres); c) production site and facilities (20.0 acres); d) powerline road (75 acres) for a total disturbance of 135 acres.

It is anticipated that Round Mountain Gold Corporation would need additional geothermal facilities at their existing heap-leach operation. Since this development would be in close proximity to the existing company facilities and roads, additional surface disturbances would be minimal. Three acres of additional disturbance would be caused by two production wells, two injection wells, pipelines, and associated buildings. The wells would probably be 1,000 to 2,000 feet in depth.

With the continued development of precious metal heap-leach operations it is anticipated that one additional geothermal source would be required to heat solutions for a future heap-leach operation somewhere in the resource area. The facility would include two 1,000-3,000 feet deep production wells, two 1,000-3,000 feet deep injection wells, associated buildings containing heat exchangers and pumps, and pipelines. It is anticipated that these features would have a surface disturbance of four acres.

It is anticipated that one dehydration plant and ancillary facilities would be constructed in the future. Such a plant would require two or three production wells drilled to a depth of 4,000 to 7,000 feet, and two injection wells of similar depth. This facility would probably be located in a valley and in close proximity to an area that is amenable to crop production (onions, carrots, alfalfa, etc.). The wells and associated pipelines would result in about three acres of surface disturbance. The buildings required for the heat exchanges, warehouse, production, office, etc. would result in an additional 20 acres of disturbance. The facilities are assumed to be located 10 miles from a major road, thus an access road resulting in an additional 48 acres of surface disturbance would also be required. The total surface disturbance related to the dehydration plant would be 71 acres.

It is possible that geothermal resources would be used to provide heat and water for up to two greenhouses. The latter would be used to grow flowers or seedlings. Such facilities would be located in a valley and would result in a surface disturbance of 71 acres for a total of 142 acres.

The recreational aspect of hot springs and wells could not be overlooked as the population increases placing increased demands on resources. It is possible that two or three recreational sites would be developed. However, new surface disturbances related to such development would be minimal.

It is estimated that up to five individuals or companies would attempt to use geothermal resources for such domestic purposes as heating and power generation. Surface disturbances related to these domestic activities would be quite limited and would be related to access roads and/or pipelines. It is estimated that such use would disturb 1.5 acres for a total of 7.5 acres.

Total disturbances related to future geothermal resource development is: Two 15 MW power plants (135 acres); Round Mountain expansion (3 acres); heap-leach operation (4 acres); dehydration plant (71 acres); two green houses (143 acres); and domestic uses (7.5 acres) for a total of 364.5 acres.

Reasonably Foreseeable Development Scenario for Locatable Minerals

Between 1981 and 1991, 67 plans of operation disturbed 7,794 acres and 890 notices disturbed 2,483 acres. The total current disturbance between 1981 and 1991 is 10,457 acres. A total of 4,081 acres (39%) are reclaimed and 6,376 acres (61%) have not been reclaimed as of 2/14/92.

Development scenarios shown below provide specific detailed information on a number of proposed levels and types of mineral development. This information is used to assist in predicting environmental consequences.

Scenario A
Notice-level exploration

Roads, drill pads, trenches, and cut and fill roads are normal in this operation. Average disturbance of three acres per year per notice. An average drill program would range from one to fifteen holes. A typical pad is 20 feet wide by 40 feet long. Holes are often drilled in roads with the latter serving as the drill pad. Cumulative unreclaimed disturbance could not exceed five acres in a project area. It is projected that 100 Scenario A operations would take place yearly.

Scenario B
Notice-level mining operation

In this operation the miner could be pursuing a placer or lode deposit. A front end loader and D-8 dozer might be utilized. Typically, the miner is following high grade mineralization that requires minimal processing facilities. Average disturbance ranges from 2-4 acres per year. Cumulative unreclaimed disturbance could not exceed five acres in a project area. Operations that are mining under this scenario would stay constant. There are 20 such operations currently in the resource area. During the life of a plan these operations would relocate, but the acreage would remain constant. This would be (20)(3) = 60 acres disturbed yearly. These operators are generally located in historic mining districts.

Scenario C
Plan-level exploration

In this operation the mining operator would disturb five to 10 acres of land per year. These projects do not normally last more than 2-5 years. Roads, trenches, and drill pads are the predominant surface disturbances. Exploration programs would involve drilling 15-30 holes yearly. Up to 200 holes might be drilled during the project. Some of these programs could start as a notice and exceed the surface disturbance threshold of five acres. It is estimated that 15 plan-level operations would take place yearly.

Scenario D
Small-enterprise plan level

In this operation a small-scale operator would pursue a working mine. The small-scale operator might mine a high-grade deposit, old tailings, or a deposit too small for the larger operators. This operation could feasibly be mining building stone, industrial materials, a lode or a deposit of precious metals or gems. The operators would be attempting to operate in favorable economic windows, with little capital investment and low operating costs. This operation might employ one to five people. The total disturbance from would be between five and 37 acres. It is anticipated that there would be 24 operations under this scenario during the next 20 years.

Scenario E
Plan-level: small to moderate mine

This operation is an open pit gold heap leach operation. This operation utilizes a leachate such as cyanide. These deposits are typically low-grade, with a cut-off grade of .025 ounces per ton (OPT). These operations could have grades of .05 to .1 OPT, but the high grade would be the exception. In-place gold reserves would be about 50,000 to 100,000 total ounces. The operations would employ 15 to 40 people, and normal mine life would be 3-6 years. The total disturbance would be between 81 and 140 acres for each operation. It is anticipated that 20 operations under this scenario would take place during the next 20 years.

Scenario F
Plan-level: large mine

This operation could be for mining base metals, industrial minerals or precious metals or gems. This mine would have one or a series of open pits to pursue the desired

commodity. A processing or mill facility would be required. A heap leach pad would only be used for gold operations. The size of the pit, the processing facility and tailings disposal would be dependent upon the commodity being mined. A molybdenum/copper circuit has larger tailings disposal areas than a gold circuit. These operations would likely have a mine life of seven years or longer. The operations could employ from 300 to 600 people. More employees are likely during construction phases of the operation. Water wells, power lines, parking and ancillary facilities would be required. Disturbance would be greatly influenced by terrain and the engineering ability to use the existing topographic features. The projected disturbance would between 430 and 3,510 acres for each operation. It is anticipated that two operations under this scenario would take place in the next 20 years.

Scenario G
Plan-level: brine mine

This operation would pump one or a combination of the following brines: lithium, sodium, potassium, boron, magnesium, or any metal-bearing brine from the aquifer. A series of evaporation ponds would be constructed. The solution would be allowed to concentrate in the ponds and then run through a mill to remove the desired product. Salt would ultimately be the product left in the pond. Either salt or metal or both are sold as the desired product. The projected disturbance would be between 1,630 and 5,415 acres for each operation.

Scenario H
Plan level expansion

This is an expansion of an existing mine to take advantage of a new ore deposit, new technology, changing economics, or changing company philosophy. A mine could have more than one expansion during its life. This acreage could be used for a new open pit or pit expansion, new leach pad, facilities, tailings expansion, or waste rock expansions, etc. This model is projected to disturb 120 to 360 acres per operation. It is anticipated that 12 operations under this scenario would take place in the next 20 years.

Scenario I
Plan-level: underground mine

In this operation the operator could be mining base metals or precious metals or gems. An underground mine would require less surface acres. Indirect impacts of subsidence and acid water drainage could result from these operations. The mine and processing facilities could be separated from the mine to take advantage of terrain. These mines typically employ 50 to 175 people and have a life of eight to 15 years. The projected disturbance would be between 90 and 135 acres per operation. It is anticipated that three operations under this scenario would take place in the next 20 years.

Based on a 20 year projection of the above scenarios, the acreage disturbed would range from a low of 12,430 acres to a high of 24,650 acres. As a percentage, this would range from 0.2 percent to 0.4 percent of the lands in the resource area. It is important to note that reclamation requirements apply to all of these acreages. The estimated acres of disturbance do not account for reclamation.

Reasonably Foreseeable Development Scenario for Mineral Materials

Mineral materials extraction would take place as close to the project as possible. Areas that would require material are the towns of Tonopah, Manhattan, Coaldale, Dyer, Warm Springs, Lida, Ione, Goldfield, Beatty, Yucca Mountain, Silverpeak, Round Mountain, Carver's, Belmont, Scotty's Junction, Tonopah Test Range, and the Blair Junction area. Currently in the resource area there are several major paved road systems These paved highways require Maintenance and rebuilding and continued sources of materials. Demand for landscape rock from the cinder cones would continue. Cinder cones are located on US Highway 6 east in the Lunar Crater area, and north of Silverpeak. Yucca Mountain development would create a need for new material sources in the Beatty area. The listing of the desert tortoise as an endangered species could increase demand

in the resource area if mineral deposits in Las Vegas and Pahrump conflict with the tortoise habitat.

Gravel pits would have one or two D-8 dozers, one or two front-end loaders, numerous haul trucks, a screening plant and possibly an asphalt batch plant. This operation would disturb 10 acres of land. The pit would be stripped of vegetation and top soil and this material would be stockpiled. Extraction would then begin in desired areas, hauled to the screening plant and batch plant and then transported to the project. Waste material would be blended into depleted areas of the pit. A highway department job would leave stockpiles of product in the pit for future use. A mining operation could last from several days to several months. Upon cessation of the mining in the pit, the walls would be sloped to 3:1, and all equipment and trash removed, and topsoil replaced.

There are currently 7,002 acres in the resource area set aside for NDOT in the form of material site rights-of-way. Not all of this acreage would be used in 15 years. BLM pits and known county pits add up to 222 acres for a total of 7,224 acres of land that could be developed without new authorizations.

Some land is already disturbed by gravel pits. It could be expected that these pits would be expanded, and that the average pit size would grow. Based on projections 20 years in the future: 200 existing pits would disturb 2,000 acres, and 100 new pits would disturb 1,000 acres for a total disturbance of 3,000 acres.

Reasonably Foreseeable Development Scenario for Non-Energy Leasable Minerals

The exploration and mining scenarios generated for locatable minerals are used to explore the potential impacts of the development of this resource.

During the life of this plan, five prospecting permits would be received. A prospecting permit would equate to a Scenario C. A permit would be received in each of the following areas: Alkali Flats, Columbus Marsh, Clayton Valley, Railroad Valley, and Smoky Valley. These are two-year projects to drill and evaluate the potential for these minerals. It is projected that only one permit would result in lease issuance. That lease is projected to be for a valuable mineral which has been found, identified, and would be developed. A total of 50 acres would be disturbed in this scenario. One Scenario G mine would be developed with a disturbance of 7,700 acres. Total disturbance from exploration and mining would be 7,750 acres.

IDENTIFICATION OF RESOURCES IMPACTED CUMULATIVELY

Cultural Resource Component

To determine cumulative impacts, a computer file was created that included the number of acres surveyed, the number of cultural resources recorded, and the benefitting activity for 736 Class III surveys (i.e., complete as opposed to sampling surveys) performed in the resource area between 1975 and 1991. The data in this file were used to calculate the site density per acre for each benefitting activity (Table 4 E). These figures were then used to estimate the number of sites that might be impacted as a result of the different activities.

Virtually all cultural resources surveys performed in the resource area have been project driven. No systematic effort has been made to survey the resource area, or specific environments or hydrographic basins, to develop statistically valid samples from which site frequencies and densities could be accurately extrapolated from one area to another. Consequently, the cumulative impact figures presented in Chapter 4 should be considered as best estimates only.

The figures provided are for all classes of sites, regardless of type (i.e., isolated artifacts and small sites, or large, complex historic and prehistoric properties). Derivation of numbers for specific types of properties using resource area files would have been exceptionally difficult given the different definitions of sites used by various researchers over the years. Inclusion of all sites in the cumulative impact analysis eliminated the need for intensive examination of reports in an attempt to control for differences in site definition.

Table 4 E
SITE DENSITY PER ACRE BY BENEFITTING ACTIVITY

Benefitting Activity	Number of Survey Sites	Number of Sites Recorded	Site Density Per Acre
Rights-of-Way and Lands	45,434.90	817	0.0180
Rangeland Management	10,876.80	384	0.0360
*Recreation	372.6	20	0.0563
*General Habitat Management	167.40	16	10.1255
*Wild Horses & Burros	52.50	8	0.1524
*Cultural	7,156.40	58	0.0081
Oil and Gas	28,324.60	962	0.3396
Locatable Minerals	20,256.10	442	0.0218
*Geothermal	482.50	21	0.0435
*Mineral Materials Sales	348.90	16	0.0459
*Non-Energy Minerals	9.70	2	0.2062
Overall Site Density	113,791.30	2,746	0.0241

*Note: The overall site density was used to calculate cumulative impacts for these activities because of the relatively small amount of acreage surveyed.

The figures presented are for all sites regardless of their National Register status. In many early reports, cultural resources were not evaluated for potential inclusion in the National Register if the site(s) could be avoided. This policy resulted in systematic under-recording of some sites, and under-representation of potential National Register properties in resource area files. In the State of Nevada, approximately 12 percent of all sites are found eligible for inclusion in the National Register. This figure could be used to calculate the approximate number of eligible cultural properties that might be affected by a given activity.

Where site density figures were not available for a specific activity (e.g., woodland harvesting) the overall site density for Class III surveys in all environments was used to provide an estimate of the numbers of sites that might be affected. In all cases, it should be kept in mind that the figures presented are not based on statistically valid samples of the resource area, and are therefore, only best approximations of the numbers of cultural resources that might be impacted by a particular activity.

When performing the cumulative impact analysis, it has been assumed for the purpose of Section 106, that the information potential of all sites within the specified acreage would be destroyed by the activity being discussed. It is recognized that not all sites would be adversely affected to the same degree, and that it would be possible to avoid direct impacts to some cultural resources altogether. It should be noted that controlled excavation, collection, and other data gathering activities are viewed here as having a negative effect on cultural resources. While collection and analysis of data from sites benefit the scientific community by providing new information that could be applied to a variety of problems, methods used to gather these data are frequently destructive of the cultural resources themselves.

Physical Component

The reasonably foreseeable future actions would cause surface changes.

Harvest of woodland products in greenwood cutting areas would be naturally reforested and impacts would be of short duration.

Proposed rangeland improvements would disturb 39,785 acres of which 16 acres would not be revegetated.

Construction of a major electric transmission line across the resource area would disturb 575 acres of which 400 acres would be in permanent roads.

Future oil and gas exploration and development would disturb 944 acres.

Future development of geothermal resources would disturb 362.5 acres which would be dedicated for the life of the plan.

Locatable mineral exploration and development could disturb up to 24,650 acres most of which would be in mining districts and around existing mines and half of the disturbance would not be cumulative.

Future exploration and development of non energy leasable minerals would impact 7,750 acres.

Mineral material sales would disturb 3,000 acres. As gravel pits are expanded, the depleted areas are reclaimed.

In Alternative 1, 3, and 4 approximately 75,600 acres, 1.2 percent of the resource area, would be disturbed during the life of the RMP. In Alternative 2, approximately 76,600 acres, 1.2 percent of the resource area, would be disturbed during the life of the plan. Most disturbed areas would be reclaimed or revegetated during the life of the RMP leaving approximately 22,000 acres to be reclaimed.

In Alternative 1, an additional 16,257 acres would be transferred into private ownership. In Alternative 2, an additional 38,834 acres would be transferred into private ownership. In Alternative 3, an additional 15,763 acres would be transferred into private ownership. In Alternative 4, an additional 36,935 acres would be transferred into private ownership. Transfer of land into private ownership would be permanent commitment of resources.

Biological Component

Actions taken to implement activity plans for wildlife, livestock and wild horses and burros would directly impact less then one percent of the resource area. These actions are designed to reach objectives for specific areas and involve projects and management action designed to maintain or improve surrounding rangeland conditions.

Rangeland vegetation manipulation projects and firewood harvest areas would be in homogeneous, less productive vegetation types with poor understory vegetation. These projects would increase cover, reduce erosion, improve rangeland conditions and wildlife habitat. The end result would be an increase in biological diversity on sites with undesirable plant communities.

The lands program would permanently commit wildlife habitat and/or eliminate vegetation. The impacts would be a long term decrease in non-descript federally managed wildlife habitat on 0.6 percent of the resource area.

Mineral exploration and development would displace wildlife from sites for the duration of operations. Many species such as song birds could acclimate to on-going disturbances with little consequence other than loss of habitat. Wild horses and burros could also acclimate to on-going disturbances. Vegetation would be temporarily removed at mineral development sites and access routes to mineral activities and represent direct habitat loss to wildlife species. Reclamation of disturbed areas would be required for all levels of mineral activity to ensure that undue and unnecessary degradation of the environment does not occur. It is estimated that the acreage disturbed in mineral activities would fragment 50 percent more acres as are currently disturbed and not reclaimed. At most, 46,539 acres, 0.8 percent of the resource area, of wildlife habitat would be fragmented or destroyed.

Due to the low productivity of the vegetation types in the resource area and the low population densities of wildlife, impacts would not be severe as long as disturbing activities do not occur on 74,345 acres of important wildlife habitats.

Social and Economic Component

No cumulative social or economic impacts may be inferred to result from implementation of any of the alternatives. No alteration of the area's social or economic structure may be expected. Minor population, income, and employment effects would be unnoticeable. The basic structure of the local economy and social organization would remain intact.

Minerals exploration and development has been, and would continue to be, ongoing within the resource area. None of the alternatives provide sufficient inducement or discouragement to effect a significant change in the plans or perceptions of that industry. The industry may be expected to continue its efforts, in the present manner and trend, subject to the usual business and economic influences. International minerals markets and prices would continue to influence the "boom-bust" cycle of minerals production and render a degree of economic instability.

No unusual population, income, or employment impacts are foreseen. While the population is expected to continue to increase throughout the life of the RMP, any expanding community requirements for the acquisition of public land through direct sale, exchange, R&PP transfer, lease, etc., are well anticipated and accommodated.

Livestock grazing may suffer some loss of AUMs due to land disposals and surface disturbance from minerals activities. Some individual ranch operators could experience serious constraints on their operating discretion due to loss of public land forage. However, such losses as may occur cannot be specifically identified, or tied to an individual ranch operation at this time. The overall effect on the livestock industry or the economy of the region is not expected to be consequential.

CHAPTER 5

CONSULTATION AND COORDINATION

CHAPTER 5

CONSULTATION AND COORDINATION

This chapter summarizes the consultation and coordination conducted in the preparation of the Tonopah Draft Resource Management Plan/Draft Environmental Impact Statement.

In the course of preparing this document, formal and informal efforts have been made to involve the public, other federal agencies, and State and local Governments in the planning process. Several points of public involvement are mandated by federal regulations; numerous other actions were taken to further involve the public.

Prior to actual writing of the document, an involved process of preparatory activities occurred. This procedure included data assembly, public participation, interagency coordination, and preparation of an analysis of the management situation. Consultation and coordination with agencies, organizations, and individuals occurred in a variety of ways throughout the planning process. A complete mailing list of those contacted throughout the planning process is on file in the Tonopah Resource Area office.

The public participation process began in February, 1990, with a publication of a Notice of Intent to prepare a Resource Management Plan in the Federal Register (Volume 59, No. 29, February 12, 1990). At the same time a scoping letter was sent out to the public, various organizations, private industry, and to the state and local government. This letter summarized the planning issues, planning criteria, management, and resource concerns identified by BLM Managers and Resource Specialists. The public was asked to evaluate the issues, planning criteria, and management concerns and to identify additional issues, criteria or concerns that should be addressed in the resource plan.

After publication in the local media and distribution of the letter, the resource area hosted three "open house" meetings. These meetings were held on March 1, 1990, in Tonopah, Nevada; on March 6, 1990, in Carson City, Nevada; and on March 8, 1990, in Las Vegas, Nevada. BLM personnel were available to explain the planning process and issues, and to discuss the concerns of those in attendance. Over 80 people attended the three meetings. During the "scoping period," 74 comment letters were received.

This document is being distributed to approximately 300 addresses, including the agencies, organizations, and political entities on the list which follows. Copies of the complete mailing list, including individuals, are on file at the Tonopah Resource Area Office.

LIST OF AGENCIES, ORGANIZATIONS AND INTEREST GROUPS TO WHOM COPIES OF THE DRAFT RMP/EIS HAVE BEEN SENT

Approximately 200 individuals and organizations have expressed an interest in use and management of public lands in the planning area. All were sent copies of the Draft Resource Management Plan/Draft Environmental Impact Statement. Included in this group are all grazing permittees and lessees within the planning area, members of Congress including all of the Nevada Congressional delegation, members of the Nevada state legislature, members of advisory councils and boards, and various libraries.

Federal Agencies

- Advisory Council on Historic Preservation
- Department of Agriculture
  - Forest Service
  - Soil Conservation Service
- Department of Defense
  - TFWC/DA Nellis AFB
- Department of the Interior
  - Bureau of Indian Affairs
  - Bureau of Mines
  - Fish and Wildlife Service
  - Geological Survey

National Park Service
Office of Environmental Affairs
Environmental Protection Agency

State Agencies

Nevada Department of Wildlife
Nevada Department of Minerals
Nevada State Clearing House
Nevada Wild Horse Commission
Office of the Governor

Local Government

Beatty Town Board
City of Gabbs
Nye County Commissioners
Nye County Planning Department
Esmeralda County Commissioners
Tonopah Town Board

Native American Councils

Las Vegas Colony Council
Lovelock Tribal Council
Reno Sparks Indian Council
Shoshone Piute Business Council
Summit Lake Piute Council
Tribal Council of the Te-Moak Western Shoshone Indians of Nevada
Washoe Tribal Council
Wells Indian Council
Yerington Tribal Council
Yomba Tribal Council

Public Libraries

Beatty Community Library
Clark County Library
Elko County Library
Esmeralda County Library
Gabbs Library
Lander County Library
Lincoln County Library
Manhattan Town Library
Mineral County Library
Nye County Library
Round Mountain Public Library
Silver Peak Library
State of Nevada Library
University of Nevada Library, Las Vegas
University of Nevada Library, Reno
White Pine County Library

Interest Groups and Organizations

Animal Protection Institute of America
American Rivers
Audubon Society
Best in the Desert Racing Association
Central Nevada Historical Society
Desert Bighorn Council
High Desert Racing Association
Humane Equine Rescue and Development Society
The Nature Conservancy
Natural Resources Defense Council
Nevada Cattlemen's Association
Nevada Council of Professional Archeologists
Nevada Land Action Association
Nevada Mining Association
Nevada Miner's and Prospector's Association
Nevada Off-Highways Users Council
Nevada Outdoor Recreation Association
Nevada Sportsman and Outdoorsman Association
Nevada State Rifle and Pistol Association
Nevada Trappers Association
Nevada Wildlife Federation
Nevada Wild Horse Commission
Sierra Club
U.S. Humane Society
Wilderness Impact Research Foundation
The Wilderness Society

CHAPTER 6

PREPARERS AND REVIEWERS

TABLE 6 A
LIST OF PREPARERS

NAME	RESPONSIBILITY	EDUCATION	EXPERIENCE
Theodore Angle	Policy Guidance and Decision Making, Editorial Support	B.S. Wildlife Management	21 years BLM
Larry Brown	Geology and Minerals	B.S. Physical Science M.S. Geology	5 years BLM 15 years Other Government 5 years Industry
Lee Grover	Wildlife, Special Status Species, Riparian, Forestry and Vegetative Products (to 11/91)	B.S. Wildlife Conservation	25 years BLM 12 years Industry
Patricia A. Hicks	Cultural Resources	B.A. Anthropology M.A. Anthropology Archeology	1 year BLM 17 years Industry
Tom Hilken	Fire Management	B.S. Biology M.S. Range Management	3 years BLM 10 years Other Government
Doris Kleinheitz	Wild Horses and Burros	B.S. Wildlife Managent	2 years BLM
Valerie Metscher	Vegetation	B.S. Range Science	13 years BLM
Paul Myers	Social Economics	B.S. Economics	14 years BLM
Roger Oyler	Livestock Grazing Management, Fire Management (to 10/92)	B.S. Range Science	16 years BLM
Gordon Pine	Geology and Minerals	B.A. Geology M.S. Geology Ph.D. Geology	2 years BLM 22 years Industry

TABLE 6 A (Continued)

NAME	RESPONSIBILITY	EDUCATION	EXPERIENCE
Tom Pogacnik	Recreation, Wilderness, ACECs Visual Resources (to 6/91)	B.S. Wildlife Management, M.S. Range Management	8 years BLM
Diane Ross	Lands, Utility Corridors (to 4/92)	B.A., M.A., Ph.D., English	13 years BLM
Victor Ross	Geology and Minerals (to 4/92)	B.S. Mining Engineering	13 years BLM
Allesa Sparks	Editorial Assistance, Administrative Support, Typing	High School	12 years BLM
Margaret Waski	Cultural Resources (to 8/91)	B.A. Anthropology	7 years BLM
Dave Wolf	Recreation, Wilderness, Visual Resources (to 4/92)	B.S. Wildlife Biology, B.S. Outdoor Recreation	16 years BLM
Hal Zabriskie	RMP Team Leader	B.S. Agriculture	23 years BLM

TABLE 6 B

REVIEWERS

NAME	PROGRAM/TITLE	OFFICE	REVIEW RESPONSIBILITY
Theodore Angle	Area Manager	Tonopah	Complete Document
Pat Barker	Archeologist	NSO[1]	Cultural Resources
Neal Brecheisen	Geologist	NSO	Oil and Gas
Osborne Casey	Fisheries Biologist	NSO	Fisheries, Woodland Management
Mary Craggett	Realty Specialist	BMDO[2]	Lands & Realty, Utility Corridors
James Currivan	District Manager	BMDO	Entire document
Duane Crimmons	Range Conservationist	BMDO	Range and Riparian
Dave Davis	District Forester	BMDO	Woodland Management
Jess Dingman	Fire Management Officer	NSO	Fire Management
Genivieve Hannon	Natural Resource Specialist	BMDO	Riparian
Tom Hilken	Fire Management Officer	BMDO	Fire Management
Brad Hines	Range Conservationist	NSO	Livestock Grazing Management
Richard Hoops	Geologist	NSO	Geothermal Leasing
Jim McLaughlin	Soil Scientist	NSO	Soil, Air, Water
Roberta McGonagle	Archeologist	BMDO	Cultural Resources
Michael Mitchel	Associate D. M.	BMDO	Complete Document, Battle Mountain Review Team leader

TABLE 6 B (Continued)

NAME	PROGRAM/TITLE	OFFICE	REVIEW RESPONSIBILITY
Tracey Pharo	Recreation Planner	BMDO	Recreation
Tom Pogacnik	Wild Horse and Burro Specialist	NSO	Wild Horses and Burros
Ned Slagle	Geologist	BMDO	Geology and Minerals
Steve Smith	Recreation Planner	NSO	Recreation, VRM, Wilderness
Christopher Stubbs	Planning and Environmental Coordinator	BMDO	Entire Document
John Snow	Geologist	NSO	Fluid Minerals
Larry Steward	Geologist	NSO	Locatable Minerals
Robert Stewart	Public Information Specialist	NSO	Editorial and Composition
Ken Stowers	Realty Specialist	NSO	Lands & Realty, Utility Corridors
Neil Talbot	Regional Planner	NSO	Review Team Leader, Complete Document
Curtis Warrick	Wildlife Biologist	NSO	Wildlife Habitat, Sensitive Plant and Animal Species
Jeff Weeks	Range Conservationist	BMDO	Livestock Grazing Management
John Winnepenninkx	Wild Horse and Burro Specialist	BMDO	Wild Horses and Burros, Wildlife, Sensitive Plant and Animal Species

[1] NSO-Nevada State Office

[2] BMDO- Battle Mountain District Office

APPENDICES

APPENDIX 1

KEY SPECIES BY ALLOTMENT

Allotment	Key Species
Blue Eagle	
	Winterfat
	Indian ricegrass
	Budsage
	Fourwing saltbush
	Basin wildrye
	Inland saltgrass
	Alkali sacaton
	Sand dropseed
Butterfield	
	Indian ricegrass
	Alkali sacaton
	Galleta
	Inland saltgrass
	Squirreltail
Crater Black Rock	
	Winterfat
	Indian ricegrass
	Galleta
	Needle and threadgrass
	Fourwing saltbush
Currant Ranch	
	Bluebunch wheatgrass
	Bitterbrush
Forest Moon	
	Bluebunch wheatgrass
	Bitterbrush
Francisco	
	Sand dropseed
	Galleta
	Indian ricegrass
	Winterfat
	Fourwing saltbush
	Squirreltail
	Nevada ephedra
	Basin wildrye
	Inland saltgrass

Allotment	Key Species
Hot Creek	
	Indian ricegrass
	Winterfat
	Galleta
	Needle and threadgrass
	Fourwing saltbush
	Bitterbrush
Hunts Canyon	
	Indian ricegrass
	Winterfat
	Galleta
	Fourwing saltbush
	Needle and threadgrass
	Squirreltail
Ice House	
	Winterfat
	Indian ricegrass
	Shadscale
	Alkali sacaton
	Inland saltgrass
Ione	
	Indian ricegrass
	Winterfat
	Sandberg bluegrass
	Galleta
	Nevada ephedra
	Black sagebrush
	Squirreltail
Magruder	
	Indian ricegrass
	Winterfat
	Crested wheatgrass
	Galleta
	Alkali sacaton
	Squirreltail

APPENDIX 1 (Continued)

Allotment	Key Species
Monitor	
	Basin wildrye
	Indian ricegrass
	Winterfat
	Inland saltgrass
	Crested wheatgrass
	Squirreltail
	Mat muhly
	Baltic rush
	Sedge
Monte Cristo	
	Indian ricegrass
	Galleta
	Fourwing saltbush
	Winterfat
	Nevada ephedra
	Shadscale
Montezuma	
	Indian ricegrass
	Winterfat
	Galleta
	Desert needlegrass
	Fourwing saltbush
Morey	
	Winterfat
	Bitterbrush
	Fourwing saltbush
	Basin wildrye
	Needle and threadgrass
	Galleta
	Indian ricegrass
	Shadscale
Nyala	
	Indian ricegrass
	Winterfat
	Galleta
	Sand dropseed
	Alkali sacaton
	Squirreltail
	Inland saltgrass
	Needle and threadgrass
	Fourwing saltbush
Ralston	
	Winterfat
	Indian ricegrass
	Shadscale
	Galleta
	Fourwing saltbush
	Sand dropseed
	Squirreltail
Razorback	
	Desert needlegrass
	Nevada ephedra
	Winterfat
	Fourwing saltbush
	Indian ricegrass
Red Spring	
	Indian ricegrass
	Winterfat
	Fourwing saltbush
	Squirreltail
	Galleta

APPENDIX 1 (Continued)

Allotment	Key Species
Reveille	
	Indian ricegrass
	Winterfat
	Fourwing saltbush
	Galleta
	Green Molly
	Squirreltail
	Sand dropseed
	Bud sage
	Needle and threadgrass
San Antone	
	Indian ricegrass
	Winterfat
	Galleta
	Sand dropseed
	Shadscale
	Green Molly
	Nevada ephedra
	Fourwing saltbush
	Squirreltail
Sand Springs	
	Indian ricegrass
	Winterfat
	Squirreltail
	Galleta
	Thickspike wheatgrass
	Black sagebrush
	Needle and threadgrass
	Sand dropseed
	Sandberg bluegrass
Sheep Mountain	
	Indian ricegrass
	Galleta
Silver King	
	Indian ricegrass
	Galleta
Silver Peak	
	Needle and threadgraqss
	Baltic rush
	Inland saltgrass
	Alkali sacaton
	Winterfat
	Black sagebrush
	Indian ricegrass
	Basin wildrye
	Sandberg bluegrass
	Shadscale
	Galleta
Smoky	
	Indian ricegrass
	Alkali sacaton
	Basin wildrye
	Alkali bluegrass
	Squirreltail
	Galleta
	Sand dropseed
	Baltic rush
	Cordgrass
	Nevada ephedra
	Inland saltgrass
	Bud sage
Springdale	
	Indian ricegrass
	Inland saltgrass
	Winterfat

APPENDIX 1 (Continued)

Allotment	Key Species
Stone Cabin	
	Indian ricegrass
	Galleta
	Winterfat
	Fourwing saltbush
	Bitterbrush
	Needle and threadgrass
	Baltic rush
	Squirreltail
	Inland saltgrass
	Sandberg bluegrass
	Nevada ephedra
Wagon Johnnie	
	Indian ricegrass
	Crested wheatgrass
	Winterfat
	Basin wildrye
	Sandberg bluegrass
	Squirreltail
	Needle and threadgrass
	Baltic rush
	Cordgrass
	Inland saltgrass
	Alkali bluegrass
	Mat Muhly
Willow Creek	
	Needle and threadgrass
	Indian ricegrass
	Bitterbrush
White Sage	
	Indian ricegrass
	Winterfat
White Wolf	
	Indian ricegrass
	Winterfat
	Fourwing saltbush
	Alkali sacaton
	Inland saltgrass
Yellow Hills	
	Indian ricegrass
	Galleta
	Winterfat
	Fourwing saltbush

APPENDIX 2
DESIRED PLANT COMMUNITY BY ECOLOGICAL SITE

VEGETATION TYPE								
Ecological Site	**Plant Community**	**Cattle**	**Sheep**	**Horses Burros**	**Antelope**	**Deer**	**Elk**	**Bighorn**
SALT DESERT SHRUB								
29-12 Sandy	Indian ricegrass	x	x	x	x	x	x	
5-8" Pricipitation	Sand dropseed	x		x	x			
Zone (p.z.)	Fourwing saltbush	x	x	x	x	x	x	
	Winterfat	x	x	x	x	x	x	
29-16 Loamy	Indian ricegrass	x	x	x	x	x	x	
Upland	Galleta	x		x			x	
5-8" p.z.	Spiny hopsage		x			x		
	Nevada ephedra		x			x		
	Fourwing saltbush	x	x	x	x	x	x	
	Winterfat	x	x	x	x	x	x	
29-17 Loamy	Indian ricegrass	x	x	x	x	x	x	
5-8" p.z.	Galleta	x		x			x	
	Shadscale		x		x	x	x	
	Bud sagebrush		x		x	x	x	
	Winterfat	x	x	x	x	x	x	
29-20 Silty	Indian ricegrass	x	x	x	x	x	x	
5-8" p.z.	Winterfat	x	x	x	x	x	x	
	Bud sagebrush		x		x	x	x	
29-22 Sodic Hill	Galleta	x		x			x	
5-8" p.z.	Indian ricegrass	x	x	x	x	x	x	
	Shadscale		x	x	x	x	x	
	Bud sagebrush		x		x	x	x	
	Winterfat	x	x	x	x	x	x	
	Nevada ephedra		x		x	x		
29-34 Sandy	Indian ricegrass	x	x	x	x	x	x	
3-5" p.z.	Fourwing saltbush	x	x	x	x	x	x	
	Cooper wolfberry							
	Nevada dalea							
29-36 Cobbly Loam	Indian ricegrass	x	x	x	x	x	x	
5-8" p.z.	Galleta	x		x			x	
	Spiny menodora							
	Bailey greasewood		x					
	Shadscale		x		x	x	x	
	Nevada ephedra		x		x	x	x	
29-42 Coarse Silty	Indian ricegrass	x	x	x	x	x	x	
5-8" p.z.	Galleta	x		x			x	
	Squirreltail	x	x	x	x	x	x	
	Winterfat	x	x	x	x	x	x	
	Bud sagebrush		x		x	x	x	
	Fourwing Saltbush	x	x	x	x	x	x	
29-46 Sandy Loam	Indian ricegrass	x	x	x	x	x	x	
5-8" p.z.	Galleta	x		x			x	
	Fourwing saltbush	x	x	x	x	x	x	
	Winterfat	x	x	x	x	x	x	
	Bud sagebrush		x		x	x	x	
	Spiny hopsage		x			x	x	

APPENDIX 2 (Continued)
DESIRED PLANT COMMUNITY BY ECOLOGICAL SITE

		VEGETATION TYPE						
Ecological Site	Plant Community	Cattle	Sheep	Horses Burros	Antelope	Deer	Elk	Bighorn
SALT DESERT SHRUB (continued)								
29-48 Outwash Plain 5-8" p.z.	Basin wildrye	x		x	x		x	
	Fourwing saltbush	x	x	x	x	x	x	
29-87 Gravelly Loam 5-8" p.z.	Indian ricegrass	x	x	x	x	x	x	
	Galleta	x		x			x	
	Bailey greasewood		x					
	Shadscale		x		x	x	x	
	Bud sagebrush		x		x	x	x	
SAGEBRUSH								
29-3 Loamy Bottom 8-12" p.z.	Basin wildrye	x		x	x		x	
	Creeping wildrye	x		x	x		x	
	Basin big sagebrush					x		
29-6 Loamy 8-10" p.z.	Indian ricegrass	x	x	x	x	x	x	x
	Needle and thread	x	x	x	x	x	x	x
	Big sagebrush (Wyo.)				x	x		x
	Fourwing saltbush	x	x	x	x	x	x	x
29-8 Shallow Calcareous Loam 8-10" p.z.	Indian ricegrass	x	x	x	x	x	x	x
	Needle and thread	x	x	x	x	x	x	x
	Black sagebrush		x					x
	Cliffrose		x		x	x	x	x
	Bitterbrush		x		x	x	x	x
29-10 Loamy Slope 8-10" p.z.	Needle and thread	x	x	x	x	x	x	x
	Indian ricegrass	x	x	x	x	x	x	x
	Big sagebrush (Wyo.)				x	x		x
	Nevada ephedra		x		x	x	x	x
29-28 Shallow Calcareous Slope 12-14" p.z.	Beardless wheatgrass Black sagebrush Cliffrose Bitterbrush	x	x	x	x		x	x
			x		x			x
			x		x	x	x	x
			x		x	x	x	x
ALKALINE MEADOWS AND BOTTOMS								
29-2 Saline Meadow 3-8" p.z.	Alkali sacaton Inland saltgrass Baltic rush	x	x				x	
	Basin wildrye	x	x		x		x	
29-4 Saline Bottom 3-8" p.z.	Basin wildrye	x	x		x		x	
	Alkali sacaton	x	x		x		x	
	Inland saltgrass Black greasewood Rabbitbrush							

APPENDIX 2 (Continued)
DESIRED PLANT COMMUNITY BY ECOLOGICAL SITE

		VEGETATION TYPE						
Ecological Site	Plant Community	Cattle	Sheep	Horses Burros	Antelope	Deer	Elk	Bighorn
MOUNTAIN MOHAGNY								
29-27 Mahogany Thicket 16-20" p.z.	Needlegrasses	x	x	x	x	x	x	x
	Basin wildrye	x		x	x		x	x
	Mountain big sagebrush				x	x		x
	Snowberry					x	x	x
	Curlleaf mountain mahogany					x	x	x
29-40 Limestone Hill 10-14" p.z.	Needlegrasses	x	x	x	x	x	x	x
	Indian ricegrass	x	x	x	x	x	x	x
	Littleleaf mountain mahogany					x	x	x
	Black sagebrush		x		x			x
	Ephedra		x		x	x		x
RIPARIAN								
29-1 Wet Meadow 8-12" p.z.	Sedge Rush	x		x	x	x	x	
	Nevada bluegrass	x	x	x	x	x	x	
	Meadow barley	x	x	x			x	

APPENDIX 3

VISUAL RESOURCE MANAGEMENT CLASSES

1. Class I. This class provides primarily for natural ecological changes; however, it does not preclude limited management activity. Any contrast created within the characteristic environment must not attract attention. It is applied to wilderness areas, some natural areas, wild portions of the wild and scenic rivers, and other similar situations where management activities are to be restricted.

2. Class II.* Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. A contrast may be seen but should not attract attention.

3. Class III.* Contrasts to the basic elements (form, line color, texture) caused by a management activity may be evident and begin to attract attention in the characteristic landscape. However, the changes should remain subordinate to the existing characteristic landscape.

4. Class IV.* Contrasts may attract attention and be a dominant feature of the landscape in terms of scale; however, the change should repeat the basic elements (form, line, color, texture) inherent in the characteristic landscape.

*Structures located in the foreground distance zone (0-½ mile) often create a contrast that exceeds the VRM class, even when designed to harmonize and blend with the characteristic landscape. This may be especially true when a distinctive architectural motif or style is designed. Approval by the Area Manager is required on a case-by-case basis to determine whether the structure(s) meet the acceptable VRM class standards and, if not, whether they add acceptable visual variety to the landscape.

APPENDIX 4

MITIGATION THRESHOLD

BIGHORN SHEEP

Mitigation can be required upon loss of:

200 acres of bighorn habitat within 3 miles of water
1,000 acres of bighorn habitat over 3 miles from water
20 acres of bighorn lambing area

MULE DEER AND ELK

Mitigation can be required upon loss of:

200 acres of deer or elk habitat within 2 miles of water
1,000 acres of deer or elk habitat over 2 miles from water
20 acres of major deer or elk winter habitat

ANTELOPE

Mitigation can be required upon loss of:

1,000 acres of antelope habitat within 4 miles of water
3,000 acres of antelope habitat over 4 miles from water

CHUKAR

Mitigation can be required upon loss of:

200 acres of chukar habitat within 1 mile of water
1,000 acres of chukar habitat over 1 mile from water

TROUT AND RIPARIAN

Mitigation can be required upon loss of:

2 acres of trout or riparian habitat

Off site mitigation may be assessed any time the mitigation threshold is exceeded in one or more actions. When a specific acreage of habitat is destroyed by an operation, normally the same acreage must be replaced by mitigation. Development of unoccupied or poorly occupied habitat, such as through installation of artificial water sources, are the normal means used.

APPENDIX 5
PROPOSED RANGE IMPROVEMENT PROJECTS[1]

ALLOTMENT NAME	NUMBER	TYPE OF IMPROVEMENT	UNITS
Blue Eagle	0089	Fence	18 miles
		Cattleguard	2 each
Butterfield	0073	Fence	18 miles
		Cattleguard	2 each
		Spring Development	3 each
		Trough	5 each
		Pipeline	1 mile
Crater Black Rock	0087	Fence	26 miles
		Cattleguard	3 each
		Well	2 each
		Trough	2 each
Francisco	0075	Spring Development	2 each
		Trough	4 each
		Pipeline	2 miles
		Vegetation Manipulation	1,400 acres
Hot Creek	0084	Fence	20 miles
		Cattleguard	4 each
		Trough	4 each
		Pipeline	10 miles
Hunts Canyon	0078	Fence	13 miles
		Cattleguard	4 each
		Spring Development	2 each
		Trough	2 each
		Pipeline	5 miles
		Vegetation Manipulation	960 acres
Ice House	0095	Well	1 each
		Fence	3.2 miles
Ione	0071	Fence	81 miles
		Cattleguard	7 each
		Well	4 each
		Spring Development	2 each
		Trough	11 each
		Pipeline	13 miles
		Vegetation Manipulation	2,400 acres
Magruder Mountain	0099	Pipeline	7.5 miles
		Trough	1 each
		Fence	9 miles
		Cattleguard	2 each
		Vegetation Manipulation	1,195 acres

APPENDIX 5 (Continued)
PROPOSED RANGE IMPROVEMENT PROJECTS[1]

ALLOTMENT NAME	NUMBER	TYPE OF IMPROVEMENT	UNITS
Monitor	0077	Fence	41 miles
		Cattleguard	7 each
		Well	1 each
		Trough	3 each
		Pipeline	3 miles
		Vegetation Manipulation	8,725 acres
Monte Cristo	0104	Well	2 each
		Pipeline	6 miles
		Trough	6 each
Montezuma	0094	Well	2 each
		Pipeline	5 miles
		Trough	5 each
		Fence	2 miles
Morey	0083	Fence	12 miles
		Cattleguard	3 each
		Spring Development	1 each
		Trough	2 each
		Pipeline	2 miles
Nyala	0088	Fence	38 miles
		Cattleguard	5 each
		Well	3 each
		Trough	6 each
		Pipeline	9 miles
		Earthen Reservoirs	2 each
Ralston	0076	Fence	113 miles
		Cattleguard	10 each
		Well	3 each
		Trough	7 each
		Pipeline	17 miles
Razorback	0093	Well	1 each
Red Springs	0091	Pipeline	2.5 miles
		Trough	1 each
		Fence	6.5 miles
Reville	0085	Fence	140 miles
		Cattleguard	14 each
		Well	2 each
		Trough	4 each
		Pipeline	5 miles
San Antone	0073	Fence	85 miles
		Cattleguard	16 each
		Spring Development	5 each
		Trough	12 each
		Pipeline	35 miles

APPENDIX 5 (Continued)
PROPOSED RANGE IMPROVEMENT PROJECTS[1]

ALLOTMENT NAME	NUMBER	TYPE OF IMPROVEMENT	UNITS
Sand Springs	0086	Fence	63 miles
		Cattleguard	7 each
		Well	2 each
		Trough	2 each
		Earthen Reservoir	3 each
		Vegetation Manipulation	10,000 acres
Silver Peak	0097	Pipeline	1.25 miles
		Spring Development	5 each
		Trough	5 each
		Fence	21.5 miles
Smoky	0074	Fence	52 miles
		Cattleguard	2 each
		Spring Development	1 each
		Trough	1 each
		Pipeline	3 miles
Stone Cabin	0082	Fence	87 miles
		Cattleguard	19 each
		Well	2 each
		Spring Development	4 each
		Trough	11 each
		Pipeline	13 miles
		Vegetation Manipulation	14,080 acres
White Wolf	0092	Well	1 each

[1] Includes projects for livestock, wild horses/burros, wildlife and watershed

APPENDIX 6
CURRENT FORAGE ALLOCATIONS-TONOPAH MFP

ALLOTMENT	INITIAL STOCKING LEVELS FOR LIVESTOCK	INITIAL HERD SIZES FOR WILD HORSES AND BURROS	POPULATION GOALS FOR WILDLIFE
Blue Eagle	2,024 AUMs	0 AUMs	9 antelope 50 bighorn sheep
Butterfield	4,779 AUMs	0 AUMs	1,424 mule deer 26 antelope 253 bighorn sheep
Crater-Black Rock	4,637 AUMs/1	0 AUMs	96 mule deer 33 antelope
Currant Ranch	282 AUMs	0 AUMs	312 mule deer 59 bighorn sheep
Forest Moon	253 AUMs	0 AUMs	731 mule deer 25 bighorn sheep
Francisco	708 AUMs/1	0 AUMs	0 AUMs
Hot Creek	7,640 AUMs/2	492 AUMs for 41 horses/2	3,962 mule deer/2
Hunts Canyon	2,237 AUMs/1	90 AUMs 15 horses for 6 months in the Saulsbury HMA/5	81 Antelope No numbers established for elk
Ione	9,150 AUMs/1	0 AUMs	200 mule deer
Monitor	3,012 AUMs/1	0 AUMs	70 mule deer 31 antelope
Morey	1,643 AUMs/2	0 AUMs	2,475 mule deer/2
Nyala	10,987 AUMs/1	0 AUMs	102 mule deer 116 antelope 93 bighorn sheep
Ralston	10,727 AUMs/1	120 AUMs for 10 horses/5	95 mule deer 196 antelope
Reveille	25,730 AUMs/1	1,980 AUMs for 145 to 165 horses/3	1,161 mule deer 510 antelope
San Antone	11,614 AUMs/1	0 AUMs	200 mule deer
Sand Springs	7,115 AUMs/1	588 AUMs for 49 horses/4	157 mule deer 57 antelope
Smoky	4,308 AUMs/1	0 AUMs	1,143 mule deer 35 antelope
Stone Cabin	9,664 AUMs/1	4,368 AUMs for 364 horses/4	1,715 mule deer 610 antelope

APPENDIX 6 (Continued)
CURRENT FORAGE ALLOCATIONS-TONOPAH MFP

ALLOTMENT	INITIAL STOCKING LEVELS FOR LIVESTOCK	INITIAL HERD SIZES FOR WILD HORSES AND BURROS	POPULATION GOALS FOR WILDLIFE
Wagon Johnnie	1,219 AUMs[/2]	468 AUMs for 39 horses[/2]	471 mule deer[/2] 108 antelope[/2] 62 elk[/2]
Willow Creek	338 AUMs	54 AUMs for 6 horses for 9 months	124 mule deer 7 antelope

[/1] From the 12/88 Rangeland Program Summary

[/2] The AUMs shown here have been adjusted as a result of the "National Forest and Public Lands of Nevada Enhancement Act of 1988." The information shown is for the portion of the allotments remaining in BLM control. The Act transferred administration of approximately 26.9% of the lands in the Morey Allotment, 13.6% of the lands in the Hot Creek Allotment, and 72.1% of the lands in the Wagon Johnnie Allotment to the Forest Service.

[/3] Directed by 1987 Court Decision (Civil R-85-535 BRT) Fallini vs. Hodel.

[/4] Area Manager's Management Action Selection Report of 3/24/89.

[/5] Wild horses drift on to public lands from the Monitor Wild Horse Territory which is administered by the U. S. Forest Service.

APPENDIX 7
CURRENT FORAGE ALLOCATIONS-ESMERALDA SO. NYE RMP

ALLOTMENT	INITIAL STOCKING LEVELS FOR LIVESTOCK	INITIAL HERD SIZES FOR WILD HORSES AND BURROS/2	POPULATION GOALS FOR WILDLIFE/3
Fish Lake Valley	52 AUMs	0 AUMs	0 wildlife
Ice House	1,057 AUMs/1	660 AUMs for: 43 horses in Silver Peak HMA; 12 burros in Fish Lake Valley HMA.	60 mule deer 227 bighorn sheep
Magruder Mountain	12,340 AUMs	2,496 AUMs for: 184 horses in Palmetto HMA; 19 horses in Gold Mountain HMA; 5 horses in Montezuma HMA.	610 mule deer
Monte Cristo	9,352 AUMs	828 AUMs for 69 horses in Dunlop HMA.	200 mule deer 616 bighorn sheep
Montezuma	10,900 AUMs	8,424 AUMs for: 12 horses and 194 burros in Bullfrog HMA; 227 horses and 71 burros in Goldfield HMA; 151 horses in Montezuma HMA; 13 horses and 34 burros in Stonewall HMA.	166 mule deer 568 bighorn sheep
Razorback	1,344 AUMs	288 AUMs for 24 burros in Bullfrog HMA.	169 bighorn sheep
Red Springs	2,360 AUMs/1	1,008 AUMs for: 62 horses in Fish Lake Valley HMA; 22 horses in Silver Peak HMA.	0 wildlife
Sheep Mountain	1,740 AUMs	492 AUMs for 41 horses in Paymaster/Lone Mountain HMA.	225 bighorn sheep
Silver King	150 AUMs	0 AUMs	0 wildlife
Silver Peak	5,973 AUMs	1,764 AUMs for: 147 horses in Silver Peak HMA, 0 in Fish Lake Valley HMA.	360 mule deer 795 bighorn sheep
Springdale	24 AUMs	0 Bullfrog HMA.	0 wildlife
White Sage	600 AUMs	0 Silver Peak HMA	0 wildlife
White Wolf	501 AUMs	1,068 AUMs for 89 horses in Silver Peak HMA.	30 mule deer
Yellow Hills	1,212 AUMs	60 AUMs for: 5 horses in Montezuma HMA; 0 horses in Paymaster Lone Mountain HMA.	0 wildlife

/1 The AUMs shown have been adjusted as a result of the "National Forest and Public Lands of Nevada Enhancement Act" of 1988. This Act transferred 5% of the Red Springs Allotment 0.5% of the Silver Peak Allotment and 11% of the Ice House Allotment to the Inyo National Forest. The Act also transferred 20% of the Fish Lake Valley Herd Management Area to the Inyo National Forest.

/2 Herd size has been apportioned among allotments within the HMAs based on census data as shown in Appendix 10.

/3 Reasonable numbers of wildlife shown in the Esmeralda-Southern Nye RMP/EIS have been proportioned out based on the acreage in each allotment within each habitat area assuming that all acreage would be equally populated by bighorn sheep or mule deer.

APPENDIX 8

ALLOTMENT CATEGORIZATION

ALLOTMENT	RANGE CONDITION			PRODUCTION PROTENTIAL			RESOURCE CONFLICTS			PRESENT MANAGEMENT		ECONOMIC RETURNS			MGT CATEGORY
	SAT	UNSAT	UNDEF	HI	MED	LOW	HI	MED	LOW	SAT	UNSAT	YES	MAYBE	NO	M, I, or C
BLUE EAGLE		X				X			X	X				X	C
BUTTERFIELD		X				X			X	X				X	C
CURRENT RANCH			X			X		X		X				X	C
CRATER BLACK ROCK		X		X			X				X		X		I
FISH LAKE VALLEY			X		X				X	X				X	C
FOREST MOON			X			X		X		X				X	C
FRANCISCO			X	X			X			X			X		I
HOT CREEK		X		X			X				X	X			I
HUNTS CANYON			X	X			X				X	X			I
ICE HOUSE			X		X			X					X		M
IONE			X	X			X				X	X			I
MAGRUDER MOUNTAINS			X	X			X				X	X			I
MONITOR			X	X			X				X	X			I
MONTE CRISTO			X			X	X				X	X			I
MONTEZUMA			X	X			X				X		X		I
MOREY		X		X			X				X		X		I
NYALA		X		X			X				X		X		I
RALSTON			X	X			X				X	X			I
RAZORBACK			X			X	X				X			X	I
RED SPRINGS		X		X			X				X			X	I
REVEILLE		X		X			X				X	X			I
SAN ANTONE			X	X			X				X	X			I
SAND SPRINGS		X				X	X				X	X			I
SHEEP MOUNTAIN			X			X		X		X				X	C
SILVER KING			X			X			X	X				X	C
SILVER PEAK			X	X			X						X		M
SMOKY			X			X	X				X		X		I
SPRINGDALE #2			X	X					X	X				X	C
STONE CABIN		X		X			X				X	X			I
WAGON JOHNNIE		X			X		X				X			X	I
WHITE SAGE			X			X			X		X		X		M
WHITE WOLF			X	X			X				X			X	I
WILLOW CREEK		X				X	X				X			X	I
YELLOW HILLS			X			X			X	X				X	C

APPENDIX 9

METHODOLOGY FOR ADJUSTMENT OF LIVESTOCK AND WILD HORSE/BURRO USE

Future adjustments in livestock active preference and wild horse/burro appropriate management level (AML) will be based on short and long term monitoring data. In cases where use by livestock and wild horses/burros overlap and individual use is indistinguishable, the adjustments will be based on the proportional relationship between livestock and wild horses/burros as established through previous land use plans as shown in Appendices 6 and 7. Examples are provided to illustrate.

SITUATION ONE: Wild horse/burro use exceeds the "thriving natural ecological balance" level and no overlap with livestock use occurs or is expected to occur with a proposed change in management.

Example: Herd Management Area A has 100 wild horses which inhabit the area 12 months of the year. Total actual use is 1,200 animal unit months (AUMs). Monitoring data show the area to be sustaining a weighted average utilization on key forage plants of 65 percent. Desired utilization is 50 percent.

Calculation of Carrying Capacity:

Formula:

$$\frac{\text{Existing Actual Use}^{/1}}{\text{Weighted Average Utilization}^{/2}} \times \text{Desired Average Utilization}^{/3} = \text{Calculated Capacity}^{/4}$$

Solve for calculated capacity and adjustment in AML:

$$\frac{1{,}200 \text{ AUMs}}{.65} \times .50 = 923 \text{ AUMs (calculated capacity for an AML of 77 wild horses for 12 months)}$$

1 Existing actual use is the number of livestock and/or wild horses actually grazing on an area expressed as AUMs.

2 Weighted average utilization is the average utilization of the forage in the area (moderate and above).

3 The desired average utilization is the degree of utilization that will meet the short and long term vegetative objectives for the area.

4 Calculated capacity is the level of use, or number of animals expressed as AUMs, which could graze the area and achieve the desired average utilization.

Conclusion:

The wild horses would be reduced from 100 animals to an AML of 77 horses.

APPENDIX 9 (Continued)

METHODOLOGY FOR ADJUSTMENT OF LIVESTOCK AND WILD HORSE/BURRO USE

SITUATION TWO: Livestock use exceeds the desired average utilization level and there are no wild horses in the allotment.

Example: Allotment B has 1000 cattle grazing for 12 months of the year. Total actual use is 12,000 AUMs. Results of monitoring show Allotment B to be sustaining a weighted average utilization on key forage plants of 70 percent. The desired average utilization is 50 percent.

Calculation of Carrying Capacity:

Formula:

$$\frac{\text{Existing Actual Use}^{/1}}{\text{Weighted Average Utilization}^{/2}} \times \text{Desired Average Utilization}^{/3} = \text{Calculated Capacity}^{/4}$$

Solve for calculated capacity and adjustment in active preference:

$$\frac{12{,}000 \text{ AUMs}}{.70} \times .50 = 8{,}571 \text{ AUMs (calculated capacity for active preference)}$$

1 Existing actual use is the number of livestock and/or wild horses actually grazing on an area expressed as AUMs.

2 Weighted average utilization is the average utilization of the forage in the area (moderate and above).

3 The desired average utilization is the degree of utilization that will meet the short and long term vegetative objectives for the area.

4 Calculated capacity is the level of use, or number of animals expressed as AUMs, which could graze the area and achieve the desired average utilization.

Conclusion:

The livestock use would be reduced form 12,000 AUMs to 8,571 AUMs.

APPENDIX 9 (Continued)

METHODOLOGY FOR ADJUSTMENT OF LIVESTOCK AND WILD HORSE/BURRO USE

SITUATION THREE: Wild horse use and livestock use overlap. Monitoring data indicate both wild horse and livestock use are contributing to the utilization measured. The combination of both uses exceeds the desired average utilization level.

Example: Allotment C has 1,000 cattle grazing for 12 months of the year. Total actual use by livestock is 12,000 AUMs. Allotment C also contains a Wild Horse Herd Management Area with boundaries that correspond to the boundary of Allotment C. An average population of 100 wild horses has been using the area for 12 months of the year. Total actual use by wild horses is 1,200 AUMs. The total actual use by livestock and wild horses is 13,200 AUMs. Results of monitoring show the area to be sustaining a weighted average utilization on key forage plants of 70 percent. The desired average utilization level is 50 percent.

Calculation of carrying capacity (Step 1):

Formula:

$$\frac{\text{Existing Actual Use}^{/1}}{\text{Weighted Average Utilization}^{/2}} \times \text{Desired Average Utilization}^{/3} = \text{Calculated Capacity}^{/4}$$

Solve for calculated capacity:

$$\frac{13{,}200 \text{ AUMs}}{.70} \times .50 = 9{,}429 \text{ AUMs (calculated capacity for livestock and wild horses)}$$

1 Existing actual use is the number of livestock and/or wild horses actually grazing on an area expressed as AUMs.

2 Weighted average utilization is the average utilization of the forage in the area (moderate and above).

3 The desired average utilization is the degree of utilization that will meet the short and long term vegetative objectives for the area.

4 Calculated capacity is the level of use, or number of animals expressed as AUMs, which could graze the area and achieve the desired average utilization.

The land use plan previously established an initial stocking level or active preference for livestock of 12,000 AUMs and an initial herd size or AML for wild horses of 50 animals or 600 AUMs for a total allocation of 12,600 AUMs. The Calculated adjustment is a reduction of **3,171 AUMs** in the combined use of livestock and wild horses. The calculation of the new allocations for livestock and wild horses are shown in the following formulas.

APPENDIX 9 (Continued)

METHODOLOGY FOR ADJUSTMENT OF LIVESTOCK AND WILD HORSE/BURRO USE

SITUATION 3 (Continued)

Calculation of New Allocation to Livestock (Step 2):

Formula:

$$\text{Initial Stocking Level} - \left(\frac{\text{Initial Stocking Level}}{\text{Total Allocation}} \times \text{Calculated Adjustment} \right) = \text{New Allocation to Livestock}$$

Solve for New Allocation (active preference) for livestock:

$$12{,}000 \text{ AUMs} - \left(\frac{12{,}000 \text{ AUMs}}{12{,}600 \text{ AUMs}} \times 3{,}171 \text{ AUMs} \right) = 8{,}980 \text{ AUMs}$$

Calculation of New Allocation to Wild Horses (Step 3):

Formula:

$$\text{Initial Herd Size} - \left(\frac{\text{Initial Herd Size}}{\text{Total Allocation}} \times \text{Calculated Adjustment} \right) = \text{New Allocation to Wild Horses}$$

Solve for New Allocation (AML) to Wild Horses:

$$600 \text{ AUMs} - \left(\frac{600 \text{ AUMs}}{12{,}600 \text{ AUMs}} \times 3{,}171 \text{ AUMs} \right) = 449 \text{ AUMs}$$

Conclusion:

The new allocation for the Allotment C would be:

Livestock = 8,980 AUMs active preference.
Wild Horse = 449 AUMs for an AML of 37 wild horses.
9,429 AUMs calculated capacity.

APPENDIX 9 (Continued)

METHODOLOGY FOR ADJUSTMENT OF LIVESTOCK AND WILD HORSE/BURRO USE

SITUATION FOUR: Wild horse use and livestock use overlap. Monitoring data indicate wild horse and livestock use contribute to the utilization measured. The combination of both uses is less then the desired average utilization level. Monitoring data indicate that additional forage is permanently available on a sustained yield basis and land use objectives can be met.

Example: Allotment D has 1,000 cattle grazing for 12 months. Total actual use by livestock is 12,000 AUMs. Allotment D also contains a Wild Horse Management Area with boundaries that correspond to the boundary of Allotment D. An average population of 50 wild horses has been using the area for 12 months. Total actual use by wild horses is 600 AUMs. The total actual use by livestock and wild horses is 12,600 AUMs. Results of monitoring show the area to be sustaining an average overall utilization level of 30 percent. Desired average utilization is 50 percent.

Calculation of carrying capacity (Step 1):

Formula:

$$\frac{\text{Existing Actual Use}^{/1}}{\text{Weighted Average Utilization}^{/2}} \times \text{Desired Average Utilization}^{/3} = \text{Calculated Capacity}^{/4}$$

Solve for calculated capacity:

$$\frac{12{,}600 \text{ AUMs}}{.30} \times .50 = 21{,}000 \text{ AUMs (calculated capacity for livestock and wild horses)}$$

1 Existing actual use is the number of livestock and/or wild horses actually grazing on an area expressed as AUMs.

2 Weighted average utilization is the average utilization of the forage in the area (moderate and above).

3 The desired average utilization is the degree of utilization that will meet the short and long term vegetative objectives for the area.

4 Calculated capacity is the level of use, or number of animals expressed as AUMs, which could graze the area and achieve the desired average utilization.

The land use plan previously established an initial stocking level or active preference of 12,000 AUMs for livestock and an initial herd size or AML for wild horses of 50 animals, or 600 AUMs, for a total allocation of 12,600 AUMs. The calculated adjustment is an increase of 8,400 AUMs which could be allocated to livestock and wild horses. The calculation of the new allocations to livestock and wild horses are shown in the following formulas.

APPENDIX 9 (Continued)

METHODOLOGY FOR ADJUSTMENT OF LIVESTOCK AND WILD HORSE/BURRO USE

SITUATION 4 (Continued)

Calculation of New Allocation to Livestock (Step 2):

Formula:

$$\text{Initial Stocking Level} + \left(\frac{\text{Initial Stocking Level}}{\text{Total Allocation}} \times \text{Calculated Adjustment} \right) = \text{New Allocation to Livestock}$$

Solve for New Allocation (active preference) to Livestock:

$$12{,}000 \text{ AUMs} + \left(\frac{12{,}000 \text{ AUMs}}{12{,}600 \text{ AUMs}} \times 8{,}400 \text{ AUMs} \right) = 20{,}000 \text{ AUMs}$$

Calculation of New Allocation to Wild Horses (Step 3):

Formula:

$$\text{Initial Herd Size} + \left(\frac{\text{Initial Herd Size}}{\text{Total Allocation}} \times \text{Calculated Adjustment} \right) = \text{New Allocation to Wild Horses}$$

Solve for New Allocation (AML) to Wild Horses:

$$600 \text{ AUMs} + \left(\frac{600 \text{ AUMs}}{12{,}600 \text{ AUMs}} \times 8{,}400 \text{ AUMs} \right) = 1{,}000 \text{ AUMs}$$

Conclusion:

The new allocation for Allotment D would be:

Livestock = 20,000 AUMs active preference.
Wild Horse = 1,000 AUMs or an AML of 83 wild horses.
21,000 AUMs calculated capacity.

APPENDIX 10

ESMERALDA-SOUTHERN NYE RMP
WILD HORSES AND BURROS BY ALLOTMENT/[1]

Allotments	Wild Horse Herd Areas										
	Bullfrog	Dunlap	Fish Lake Valley	Gold Mountain	Goldfield	Montezuma	Palmento	Paymaster/ Lone Mountain	Silver Peak	Stonewall	Total
Ice House			12 B/[3]						43 H/[2]		43 H 12 B
Magruder				19 H		5 H	184 H				208 H
Monte Cristo		69 H									69 H
Montezuma	12 H 194 B				227 H 71 B	151 H				13 H 34 B	403 H 299 B
Razorback	24 B										24 B
Red Springs			62 H						22 H		84 H
Sheep Mountain								41 H			41 H
Silver Peak									147 H		147 H
White Wolf									89 H		89 H
Yellow Hills						5 H					5 H
Unalloted								7 H	6 H		13 H
Total	12 H 218 B	69 H	62 H 12 B	19 H	227 H 71 B	161 H	184 H	48 H	307 H	13 H 34 B	1102 H 335 B

/1 The ROD for Esmeralda-Southern Nye allocated active preference to livestock as shown on page 58 of the RMP/EIS. The same document set the initial herd size for wild horses/burros by HMA as shown on page 30 of the ROD. Some allotments have more than one HMA within their boundaries (e.g., the Montezuma grazing allotment), and some HMAs are comprised of portions of more than one grazing allotment (e.g., Paymaster/Lone Mountain HMA). The table provides a distribution of the number of wild horses and burros for each allotment by HMA as well as the corresponding totals. The numbers are derived by analyzing the census data accumulated from 1988 through 1990. That information divided by the initial herd size provides the proportion of the herd which is provided for in each allotment.

/2 Wild Horses

/3 Burros

APPENDIX 11

EXISTING WITHDRAWALS/SEGREGATIONS

I. CLASSIFICATIONS

TYPE	NUMBER	ACRES
Small Tract	2	8.92
Classification and Multiple Use	4	1,984.00
Recreation and Public Purposes	19	1,534.09
Desert Land Entry	18	5,725.89
Carey Act	4	3,316.42
Air Port Leases	4	286.20
	Total	12,855.52

II. WITHDRAWALS

TYPE	NUMBER	ACRES
Air Force	2	619.32
BLM-Public Water Reserve	1	2,701.71
BLM-Power Site Reserve	1	17.00
BLM-Protective	1	14,710.33
BLM-Administrative	1	5.00
Bureau of Indian Affairs	1	40.00
Department of Energy	3	2,571.29
Federal Aviation Administration	3	417.77
Federal Energy Regulation Commission	1	45.05
Forest Service Administrative	2	11.40
	Total	21,138.87

APPENDIX 12

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS

OPPORTUNITY CLASS	EXPERIENCE OPPORTUNITY	SETTING OPPORTUNITY
Primitive	Opportunity for isolation from the sights and sounds of man, to feel a part of the natural environment, to have a high degree of challenge and risk, and to use outdoor skills.	Area is characterized by essentially unmodified natural environment of fairly large size (2,500 acres). Concentration of users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of man-induced restrictions and controls. Only facilities essential for resource protection are used. No facilities for comfort or convenience of the user are provided. Spacing of groups is informal and dispersed to minimize contacts between groups. Motorized use within the area is not permitted.
Semi-Primitive Non-Motorized	Some opportunity for isolation from the sights and sounds of man, but not as important as for primitive opportunities. Opportunity to have high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills.	Area is characterized by a predominantly unmodified natural environment of moderate to large size (2,500 acres). Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values and the safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is not permitted.
Semi-Primitive Motorized	Some opportunity for isolation from the sights and sounds of man, but not a important as for primitive opportunities. Opportunity to have high degree of interaction with the natural environment, to have moderate challenge and risk, and to use outdoor skills. Explicit opportunity to use motorized equipment while in the area.	Area is characterized by a predominantly unmodified natural environment of moderate to large size (2,500 acres). Concentration of users is low, but there is often evidence of other area users. On-site controls and restrictions may be present, but are subtle. Facilities are provided for the protection of resource values and safety of users only. Spacing of groups may be formalized to disperse use and limit contacts between groups. Motorized use is permitted.
Roaded Natural	About equal opportunities for affiliation with other user groups and for isolation from sights and sounds of man. Opportunity to have a high degree of interaction with the natural environment. Challenge and risk opportunities are not very important except in specific challenging activities. Practice of outdoor skills may be important. Opportunities for both motorized and nonmotorized recreation are present.	Area is characterized by a generally natural environment with moderate evidence of the sights and sounds of man. Resource modification and utilization practices are evident, but harmonize with the natural environment. Concentration of users is low to moderate with facilities sometimes provided for group activity. On-site controls and restrictions offer a sense of security. Rustic facilities are provided for user convenience as well as for safety and resource protection. Conventional motorized use is provided for in construction standards and design of facilities.

APPENDIX 12 (Continued)

THE RECREATION OPPORTUNITY SPECTRUM CLASS DESCRIPTIONS

OPPORTUNITY CLASS	EXPERIENCE OPPORTUNITY	SETTING OPPORTUNITY
Rural	Opportunities to experience affiliation with individuals and groups are prevalent as is the convenience of sites and opportunities. these factors are generally more important than the natural setting. Opportunities for wildland challenges, risk taking, and testing of outdoor skills are unimportant, except in those activities involving challenge and risk.	Area is characterized by substantially modified natural environment. Resource modification and utilization practices are obvious. Sights and sounds of man are readily evident, and the concentration of users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for specific activities. Developed sites, roads, and trails are designed for moderate to high use. Moderate densities are provided far away from developed sites. Facilities for intensive motorized use are available.
Modern Urban	Opportunities to experience affiliation with individuals and groups are prevalent as is the convenience of sites and opportunities. Experiencing the natural environment, and the use of outdoor skills are largely unimportant.	Area is characterized by a highly modified environment, although the background may have natural elements. Vegetation is often exotic and manicured. Soil may be protected by surfacing. Sights and sounds of man, on-site, predominate. Large numbers of users can be expected. Modern facilities are provided for the use and convenience of large numbers of people. Controls and restrictions are obvious and numerous. Facilities for high intensity motor use and parking are present with forms of mass transit often available.

APPENDIX 13

CULTURAL RESOURCE MANAGEMENT GUIDELINES

Manage for Information Potential

Cultural resources included under this management objective are capable of contributing useful scientific, historic, or management information. This information potential is to be protected to the extent needed, by physical or administrative means until the potential has been realized through appropriate study. The following resource types, and/or areas, will be managed for information potential: prehistoric lithic scatters, prehistoric ceramic scatters, historic archeological sites without architectural features, sites in upland pinyon-juniper forests and sites in riparian areas.

Resources to be managed for information potential can be studied, utilized, or included in data recovery projects to mitigate adverse effects after compliance with the BLM 8100 Manual Series and section 106 of the National Historic Preservation Act.

Manage for Public Values

Cultural resources included under this objective possess identified sociocultural, educational, recreational, or other public values. Their locations are to be managed in a manner that gives adequate consideration to these values. Resources managed for public values will have those values realized through activity plans. The following resource types and/or areas will be managed for public values: rock art alignments (geoglyphs) will be managed to preserve their sociocultural values for Native Americans, historic town sites, mining or milling sites, ranching or agricultural sites, or other historic sites with architectural features will be managed for educational and recreational values. Cultural resources can be released from public value after a representative sample has been preserved.

Manage for Conservation

Cultural resources to be conserved are those with overriding scientific or historic importance. They are managed to maintain them in their present condition and to protect them from potentially conflicting land or resource uses. Resources managed for conservation will have those values realized through resource and/or area specific activity plans.

For conservation and protection of cultural resources, activity plans may provide for fencing, monitoring, purchase of claims, stabilization, establishment of parks with full time rangers, limited data recovery/collection, public education/interpretation, or other protective measures. In addition, it is important that representative samples of all classes of sites in the resource area be preserved for the enjoyment and scientific benefit of future generations. Cultural resources can be released from conservation after a representative sample has been preserved.

Activity Plans

Cultural resources in the resource area will be allocated to specific uses in subsequent activity plans. Activity plans containing detailed management prescriptions for selected cultural properties will be developed after use allocations have been made.

APPENDIX 13 (Continued)

CULTURAL RESOURCE MANAGEMENT GUIDELINES

Cultural resource activity plans will be developed for the following areas: Trap Springs-Gravel Bar Complex, Stormy-Abel Complex, Cane Man Hill Petroglyphs, Tybo and McIntyre Charcoal Kilns, Moores Station Petroglyphs, Jumbled Rock Petroglyph, Tonopah Lake Complex, Mud Lake Complex, Big Springs Petroglyphs, Fish Lake Valley Petroglyphs, Mountain View Arrastra, Columbus Salt Marsh, Witched Well, Oriental Wash Petroglyphs, Cave Spring and The Cistern.

A rock art management plan will be developed for the resource area in consultation with Native American Leaders.

Monitoring

Archaeological Resource Protection Act (ARPA) surveillance points will be established in the following areas: Silver Peak Range, Clayton Valley, Fish Lake Valley, Hot Creek Range, Railroad Valley, all valleys with late Pleistocene lake features.

ARPA law enforcement and monitoring plans will be written for the following areas: Rhyolite, Trap Springs, Gravel Bar, and Stormy-Abel prehistoric districts, Fish Lake Valley Petroglyphs, Cave Spring, Cane Man Hill, Big Springs Petroglyphs and Fish Lake Valley Salt Marsh.

GLOSSARY AND ACRONYMS

GLOSSARY INCLUDING ACRONYMS

ACEC	Area of Critical Environmental Concern. Places within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural or scenic values, fish and wildlife resources, other natural systems or processes or to protect life and safety from natural hazards.
Allotment Categorization	The grazing management program has assigned priorities to management efforts using a selective management approach. Under this approach, grazing allotments are categorized into "I", "M", and "C" management categories. The objectives for these categories are to: 1) Improve (I) current unsatisfactory conditions; 2) Maintain (M) current satisfactory conditions; or 3) Manage custodially (C) while protecting existing resource values. Proposed actions for managing allotments within each category are designed to meet these objectives.
Allotment	An area of land designated and managed for grazing of livestock.
AML	Appropriate Management Level. The maximum number of wild horses and/or burros to be managed for in a herd management area. The Population number has been set through evaluation of monitoring data.
AMP	Allotment Management Plan. A documented program which prescribes the manner in which livestock operations will be conducted to meet multiple-use sustained yield, economic and other objectives.
APD	Application for permit to drill. A written application for the purpose of drilling for oil and gas.
Appropriative Water Right	The right to use water in accordance with the appropriation doctrine obtained by making application under State law and administrative claims procedures.

ARPA	Archaeological Resources Protection Act of 1979. The purpose of this Act is to secure, for the present and future benefit of the American people, the protection of archeological resources and sites which are on public lands and Indian lands and to foster increased cooperation and exchange of information between governmental authorities, the professional archeological community, and private individuals having collections of archeological resources and data which were obtained before the date of this Act.
AUM	Animal Unit Month. The amount of forage necessary for the sustenance of one cow or its equivalent for a period of one month.
Bajada	A broad, continuous alluvial slope or gently inclined detrital surface extending from the base of mountain ranges out into and around an inland basin, formed by the lateral coalescence of a series of separate but confluent alluvial fans, and having an undulating character due to the convexities of the component fans, it occurs most commonly in semiarid and desert regions, as in the southwest U.S.
BOPD	Barrels of oil per day.
"C" Category	A grazing allotment category where the objective is to Custodially manage the existing resource values.
Candidate Species	System of categorization provided by the Endangered Species Act. Category 1 (C1) are plant and animal species for which the U.S. Fish and Wildlife Service has on file substantial information to support a proposal to list as threatened or endangered. Category 2 (C2) are plant and animal species for which current information indicates that a proposal to list as threatened or endangered is possibly appropriate, but for which more information is needed to support a listing proposal.
Carey Act	The Act of August 18, 1894, which enables the Federal government to grant lands to eligible states which may in turn make grants to entrymen who irrigate and reclaim said lands (see 43 U.S.C. 641).

Casual Use	Any short-term non-commercial activity which does not cause appreciable damage or disturbance to the public lands, their resources or improvements, and which is not prohibited by closure of the lands to such activities.
Charcoal Kiln	An historic structure made of rock or brick in which charcoal is produced through the burning of wood.
Class I Cultural Inventory	An inventory of the existing literature and a profile of the current data base for cultural resources, frequently utilized to guide field inventories.
Class II Cultural Inventory	A sample-oriented field inventory which is representative of the range of cultural resources within a finite study area.
Class III Cultural Inventory	An intensive field inventory designed to locate and record, from surface and exposed profile, all cultural resources within a specified area.
CFR	Code of Federal Regulations.
CRMP	Coordinated Resource Management Planning. Through the CRMP process livestock operators, interested members of the public, organization representatives, and officers of state and federal resource management agencies formulate activity plans for the management of wildlife, wild horses/burros, and livestock.
Cultural Resources	Fragile and non-renewable elements of the environment including archeological remains (evidence of prehistoric or historic human activities) and sociocultural values traditionally held by ethnic groups (sacred places, traditionally utilized raw materials, etc.).
Cultural Resources Property	Any physical evidence of former human presence more than 50 years old. Examples can include anything from a single isolated artifact (stone flak, projectile point, bottle fragment, etc.) to vestiges of an old trail, historic period dump or 19th century mining operation,to a large aboriginal village or historic townsite.

DLE	Desert Land Entry. An entry of irrigable, arid, agricultural public land under the Act of March 3, 1877, which the entryman must reclaim, irrigate and cultivate. An individual may file and receive patent to a maximum of 320 acres [no residency requirement in Nevada].
Ecological Site	A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. An ecological site is the product of all environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differs from that of all other ecological sites in kind or production of species or in total production.
Ephemeral Range	Range on which the principal plants are self-perpetuating annual, herbaceous species.
ERMA	Extensive Recreation Management Area. The portion of the resource area which is not within an SRMA. ERMAs are areas where recreation is dispersed and unstructured and where minimal recreation related investments are required.
ESA	Endangered Species Act of 1973 (as amended). Federal laws to ensure that no federal action will jeopardize the continued existence of federally listed or proposed threatened or endangered species of plant or animal.
Experimental Stewardship	A program authorized by Section 12 of the Public Rangelands Improvement Act of 1978. The goal of the program is effective resource management by grazing permittees whose stewardship results in improved range conditions.

Fire Intensity Level

An expression of fireline intensity, based on typical flame length of a fire behavior condition, used in the analysis to reflect differences in difficulty of suppression and fire effects on resource output:

Flame Length (feet)	Fire Intensity Level
0 - 2	1
2 - 4	2
4 - 6	3
6 - 8	4
8 - 12	5
12 +	6

FLPMA

Federal Land Policy and Management Act. Public Law 94-579, October 21, 1976. Often referred to as the BLM "Organic Act," which provides the majority of the BLM's legislative authority, direction, policy, and basic management guidance.

Fluid Minerals

Includes both oil and gas and geothermal resources. Established by the Mineral Leasing Act of 1920 and the Geothermal Steam Act of 1970.

FMAP

The approved Battle Mountain Fire Management Activity Plan.

Herd Area

The geographic area identified as having provided habitat for a herd of wild horses/burros in 1971.

HMA

Wild Horse/Burro Herd Management Area. Geographic units within herd areas which are managed for wild horses and burros.

HMAP

Herd Management Area Plan. A plan for management of wild horses/burros in a geographical unit.

HMP

Habitat Management Plan. A plan for management of wildlife habitat in a geographical unit.

"I" Category

A grazing allotment category where the objective is to improve the current resource condition.

IMP	Interim Management Policy and Guidelines. Guidelines for managing Wilderness Study Areas so as not to impair their suitability for preservation as wilderness until the decision is made to designate an area as wilderness or to release it for multiple use purposes.
Interdisciplinary Approach	Cooperative, interactive consultation and analysis among individuals representing two or more disciplines to "insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision making, which may have an impact on man's environment" [NEPA 102(2)(A)].
Initial Herd Size	The initial herd size for wild horses and/or burros is the AML until modified or adjusted by monitoring and evaluation.
Issue	A concern or controversy about existing and potential resource allocations, levels of resource use, production and protection, and related management practices.
KGRA	Known Geothermal Resource Area. Lands that have known value for geothermal resources.
Livestock	Domestic livestock including cattle, sheep, horses, burros and goats. In the Tonopah Resource Area cattle, sheep, and horses are the only domestic livestock licensed.
Livestock Carrying Capacity	The maximum stocking rate possible without inducing damage to vegetation or related resources.
Locatable Minerals	Any valuable mineral that is not salable or leasable including gold, silver, molybdenum, tungsten, uranium, etc.
"M" Category	A grazing allotment category where the objective is to maintain the current resource condition.
MFP	Management Framework Plan. A planning decision document prepared before the effective date of the regulations implementing the land use planning provisions of FLPMA.

Mineral Materials	Common varieties of sand, building stone, gravel, clay, moss rock, etc., obtainable under the Mineral Act of 1947, as amended.
MLRA	Major Land Resource Areas. An SCS method for classifying areas suitable for potential uses.
MMBO	Million barrels of oil.
Monitoring	The orderly collection and analysis of data to evaluate progress in meeting resource management objectives.
Multiple Use	Management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific, and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.
NDOT	State of Nevada Department of Transportation.
NDOW	State of Nevada Department of Wildlife.

NEPA	National Environmental Policy Act of 1969. A law enacted on January 1, 1970 that established a national policy to maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations of Americans. It established the Council on Environmental Quality for coordinating environmental matters at the federal level and to serve as advisor to the President on such matters. The law made all federal actions and proposals which could have a significant impact on the environment subject to review by federal, state and local environmental authorities.
NHPA	National Historic Preservation Act of 1966. The Act establishes the Advisory Council on Historic preservation and State Historic Preservation officers.
National Natural Landmark Register	A program which seeks to identify and encourage the preservation of areas that illustrate the ecological and geological character of the United States.
NOI	Notice of Intent. A notice printed in the Federal Register announcing that the agency is going to prepare an RMP and/or EIS.
Non-Energy Leasable Minerals	Solid minerals such as phosphate, sodium and potassium which may be acquired under the Mineral Leasing Act of 1920, as amended.
NSO	No Surface Occupancy. A fluid minerals leasing stipulation that prohibits occupancy or disturbance on all or part of the lease surface in order to protect special values.
OHV	Off-Highway Vehicles. Any motorized vehicle designed for cross-country travel over any type of natural terrain.

OHV Designations	Open: An area where all types of vehicle use is permitted at all times, anywhere in the area subject to operating regulations and vehicle standards set forth in law.
	Limited: An area restricted at certain times, in certain areas, and/or certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories: numbers of vehicles; types of vehicles; time or season of vehicle use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other restrictions.
	Closed: An area where off-highway vehicle use is prohibited.
Oil play	The extent of a petroleum bearing formation and the activities associated with petroleum development.
Order 3 Soil Survey	A general soil survey normally conducted by the USDA, Soil Conservation Service, adequate for general planning purposes to determine land use restrictions.
Petroglyph	A figure, design, or indentation carved, abraded, or pecked into a rock surface.
Pictograph	A figure or design painted onto a rock surface.
Plan of Operation	A plan submitted in compliance with 43 CFR 3802 or 43 CFR 3809, by an operator which outlines in detail proposed exploration or mining activities for BLM approval. Can apply to solid leasable minerals or locatable minerals.
Planning Criteria	The constraints and guides for planning purposes as outlined in 43 CFR 1610.4-2. Planning criteria state what will or will not be done during the planning process.
Pluvial Lake bed	A lake bed that was formed during a climatic wet cycle.
PNC	Potential Natural Community: The climax or final vegetation community that emerges after a series of successive vegetational stages. The climax community prepetuates itself indefinately unless disturbed by outside forces.

Proper Functioning Condition	Riparian areas typified by: reduced erosion, improved water quality, increased ground water recharge, stabilized streambanks, productive habitat, and diverse stream channels.
Public Lands	Any land owned by the United States and administered by the Secretary of the Interior through the BLM.
Public Water Reserve	A tract of public land reserved under 43 U.S.C. Section 141 et seq. (Pickett Act) or 43 U.S.C. Section 300 (Stock-Raising and Homestead Act of 1916), containing a spring and/or waterhole, which by law or exective action was withdrawn to preserve the water for certain limited public purposes.
R&PP	Recreation and Public Purposes Act. The Act allows the disposal of public lands to any state, local, Federal or political instrumentality or any non-profit organization for any recreational or public purpose, provided there is no other public land law that is applicable.
RFD	Reasonably Foreseeable Development scenarios. The projection of activities associated with a particular action which can be reasonably foreseen to occur within the near future based on existing trends and economic factors. RFDs are used to provide a base line for impact comparison of alternatives in an economic analysis.
Reasonable Numbers	Long-term average big game population numbers to be managed for.
Riparian Area	An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.
RMP/EIS	Resource Management Plan/Environmental Impact Statement. A land use plan as described by the FLPMA; combined with a written analysis of the impacts on the environment caused by the plan.

RNA	Research Natural Area. An area which contains natural resource values of scientific interest and is managed primarily for research and educational purposes.
ROD	Record of Decision. a) States what the decisions are. b) Identifies the alternatives considered in reaching the decision and which were considered to be environmentally preferable. c) States whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted.
ROS	Recreation Opportunity Spectrum. A system to identify recreation opportunities available on public lands.
ROW	Right-of-Way. The legal right of use, occupancy, or access across land or water areas for a special purpose or purposes.
SCS	U.S.D.A., Soil Conservation Service.
Section 7 Consultation	Section 7 of the endangered species act requires consultation with the U.S. Fish and Wildlife Service if the habitat of a threatened or endangered plant or animal may be affected by a federally authorized action.
Section 106 Procedure	Refers to Section 106 of the NHPA which requires consideration of historic and cultural resources prior to initiation of proposed BLM authorized activities.
Sensitive Species	Plant and animal species occurring on public lands and requiring special management attention in order to protect them and in order to prevent irreparable damage to the important resources or other natural systems or processes on which it depends. The sensitive list is made up of species listed in category 3c in the Federal Register, Vol. 50 No. 188, September 27, 1985, page 39526.
SOP	Standard Operating Procedures. Management guidance which applies to, and is part of, the proposed management.
Special Status Species	Wildlife and plant species either federally listed or proposed for listing as endangered or threatened (also see Candidate Species).

SPG	BLM Manual 1620, Supplemental Program Guidance.
SRMA	Special Recreation Management Area. Areas where the presence of high quality natural resources and current or potential demand warrants intensive use practices to protect the area for its scientific, educational and/or recreational values.
Surveillance	Intensive monitoring of areas where human activity is damaging cultural resources surveillance may be a scheduled on-site visit, a reconnaissance flight or by observations taken while doing other work.
Trend	The direction of change over time, either toward or away, from desired management objectives.
Unauthorized Use	Any use, occupancy, or development of the public lands, other than casual use, without proper authorization.
Utility Corridors	A parcel of land designated through the land-use planning process as a preferred location for existing and future right-of-way grants. Designation criteria is set forth in Section 503 of FLPMA, 43 CFR 2806.2 and BLM Manual Section 2801.11.
Utilization	The percentage of forage that has been consumed by animals during a time period.
Vegetation Type	A classification of the plant community on a site based on the dominant plant species in the community.
Vested Water Right	A right supported by law that settles the use of water by an individual without contingency; a right complete and consumated, and of such character that it cannot be diverted without the consent of the person to whom the right belongs; it is fixed or established and no longer open to controversy.
VRM	Visual Resource Management. A rating system outlined in BLM Manual 8410 designed for inventorying and managing visual resources.

Wild Horse/Burro	An unbranded and unclaimed horse/burro and it's progeny that has occupied the public lands on or after December 15, 1971, or that uses these lands as all or part of it's habitat.
Withdrawal	Withholding an area of federal land from settlement, sale, location, or entry under some or all of the general land laws for the purpose of limiting activities under those laws to maintain other public values.
WSA	Wilderness Study Area. An area which has been inventoried and found to be wilderness in character as described in Section 603 of the FLPMA and section 2(c) of the Wilderness Act.

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MAPS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 1

TONOPAH RMP

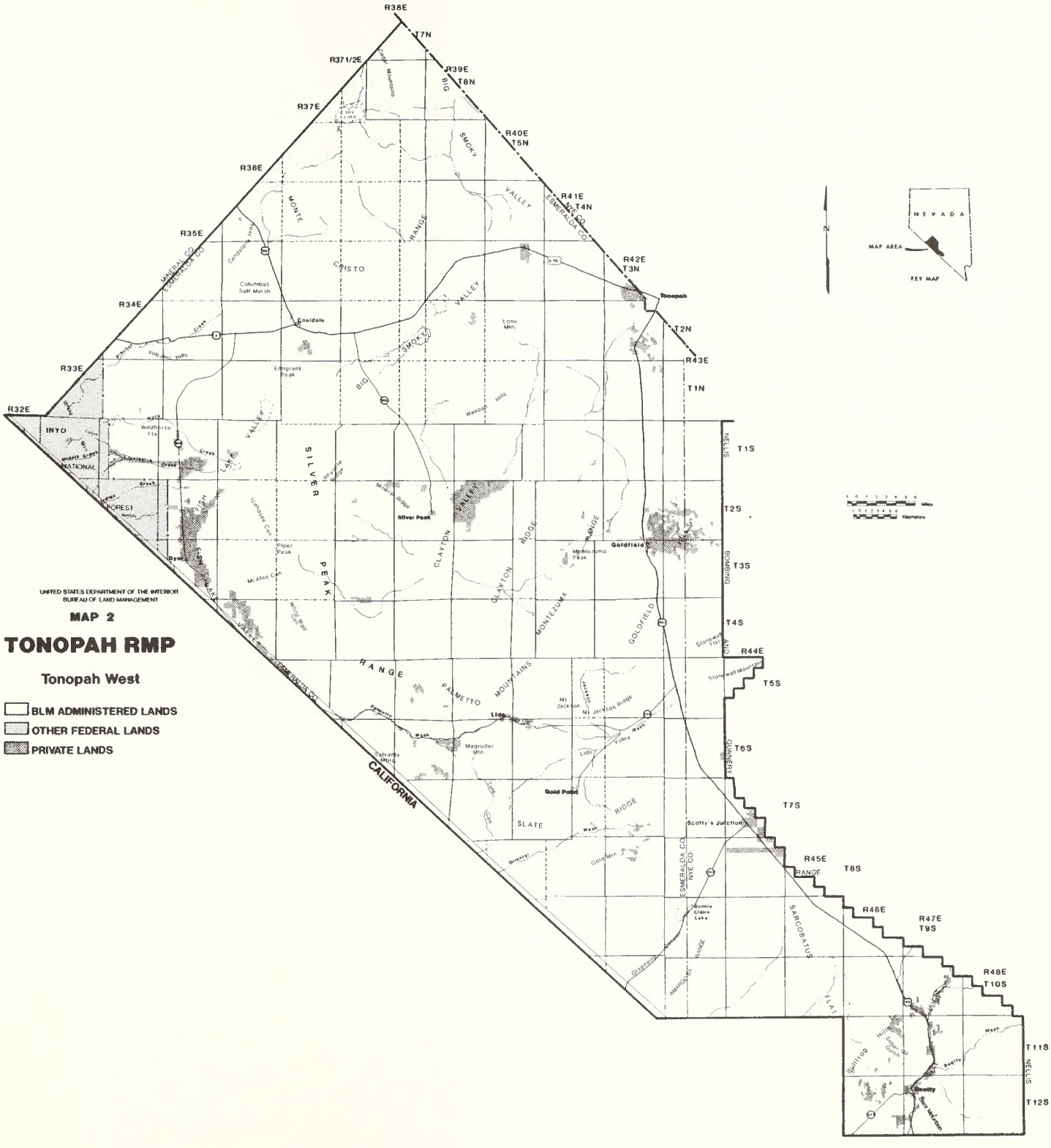
Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

NEVADA — MAP AREA — KEY MAP

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 2

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 3

TONOPAH RMP

Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

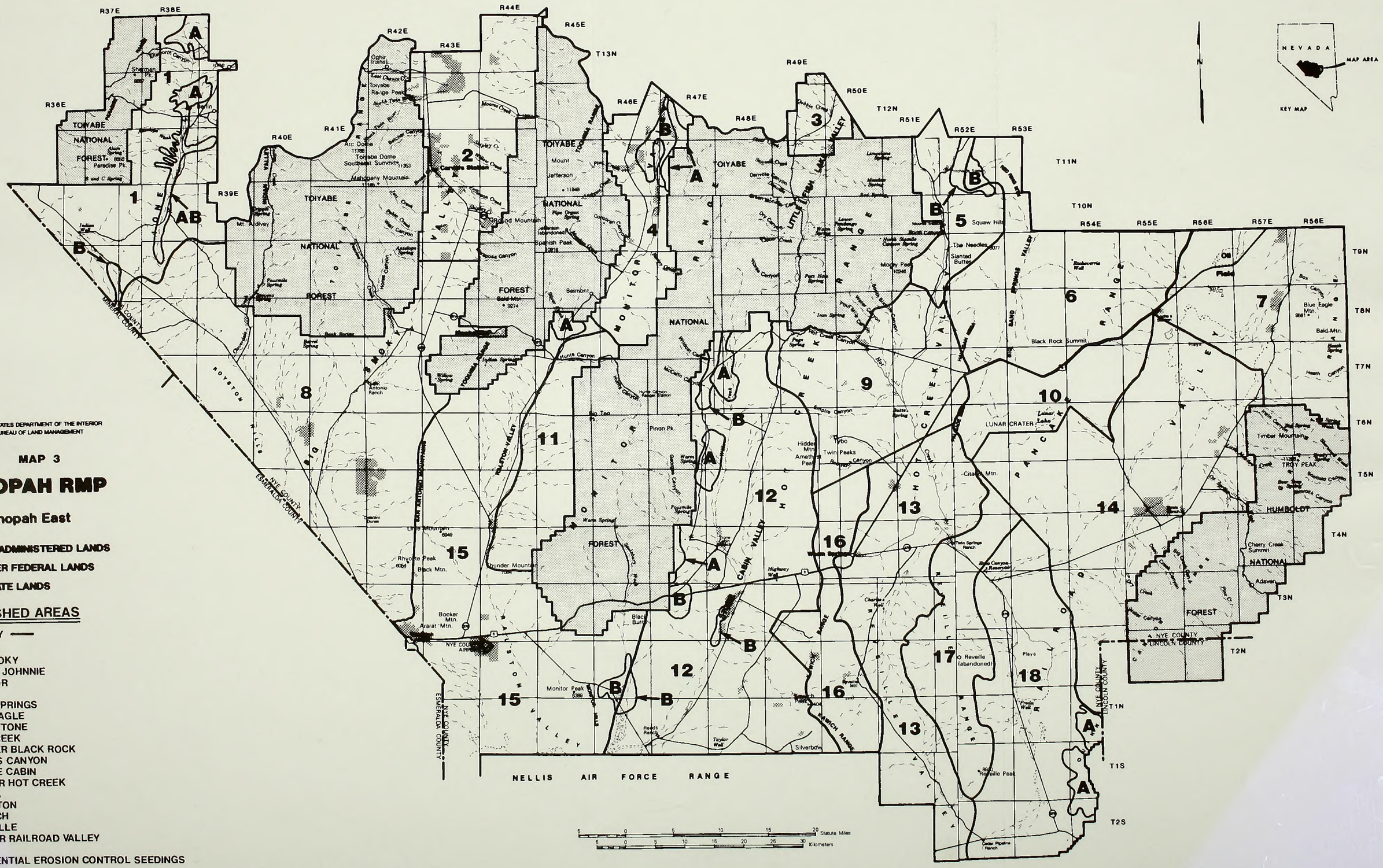
WATERSHED AREAS

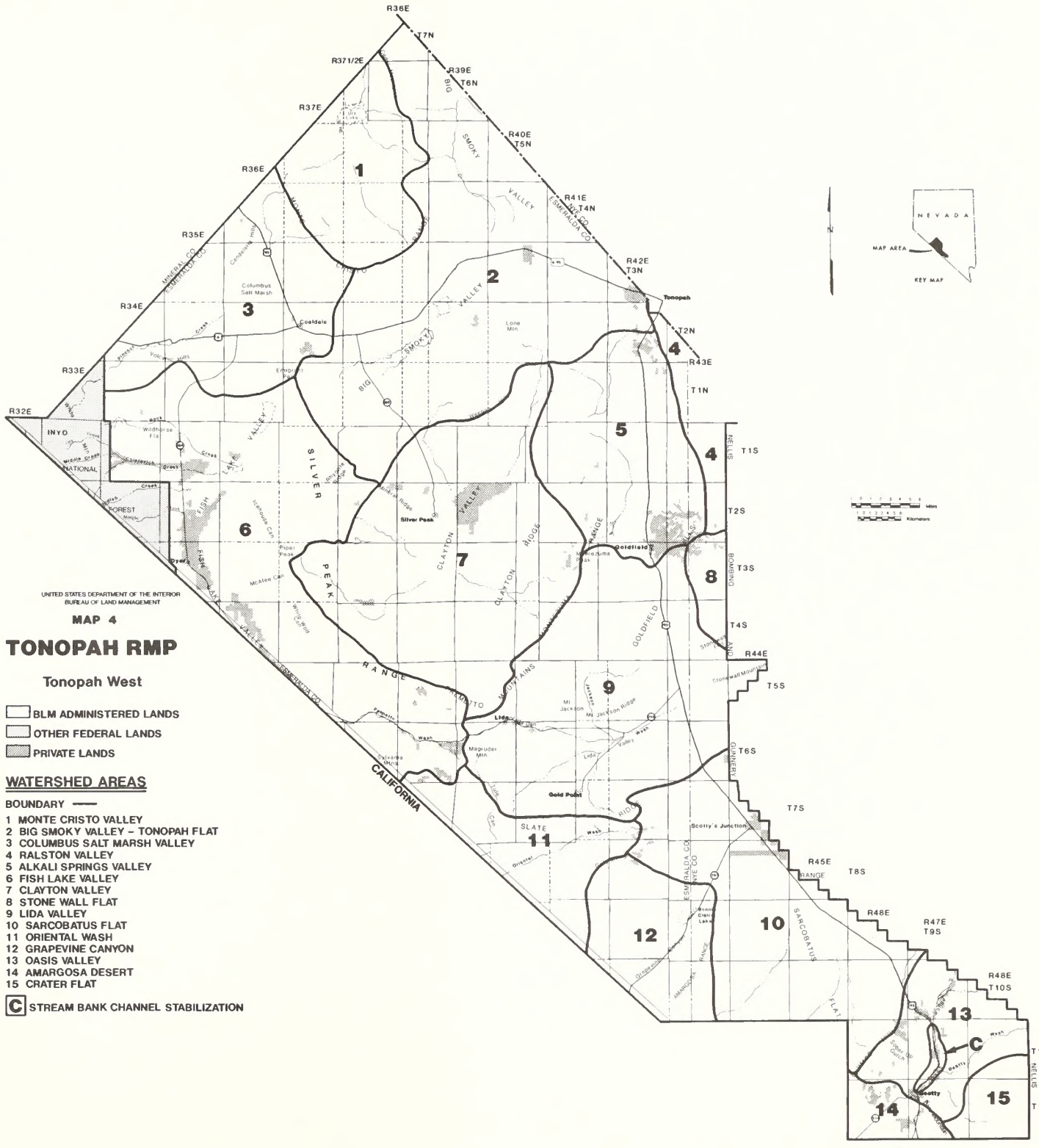
BOUNDARY

1 IONE
2 BIG SMOKY
3 WAGON JOHNNIE
4 MONITOR
5 MOREY
6 SAND SPRINGS
7 BLUE EAGLE
8 SAN ANTONE
9 HOT CREEK
10 CRATER BLACK ROCK
11 HUNTS CANYON
12 STONE CABIN
13 LOWER HOT CREEK
14 NYALA
15 RALSTON
16 KAWICH
17 REVEILLE
18 LOWER RAILROAD VALLEY

A POTENTIAL EROSION CONTROL SEEDINGS

B POTENTIAL EROSION CONTROL SEEDINGS AND STREAM BANK CHANNEL STABILIZATION





UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 4

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

WATERSHED AREAS

BOUNDARY ——

1 MONTE CRISTO VALLEY
2 BIG SMOKY VALLEY – TONOPAH FLAT
3 COLUMBUS SALT MARSH VALLEY
4 RALSTON VALLEY
5 ALKALI SPRINGS VALLEY
6 FISH LAKE VALLEY
7 CLAYTON VALLEY
8 STONE WALL FLAT
9 LIDA VALLEY
10 SARCOBATUS FLAT
11 ORIENTAL WASH
12 GRAPEVINE CANYON
13 OASIS VALLEY
14 AMARGOSA DESERT
15 CRATER FLAT

C STREAM BANK CHANNEL STABILIZATION

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 5

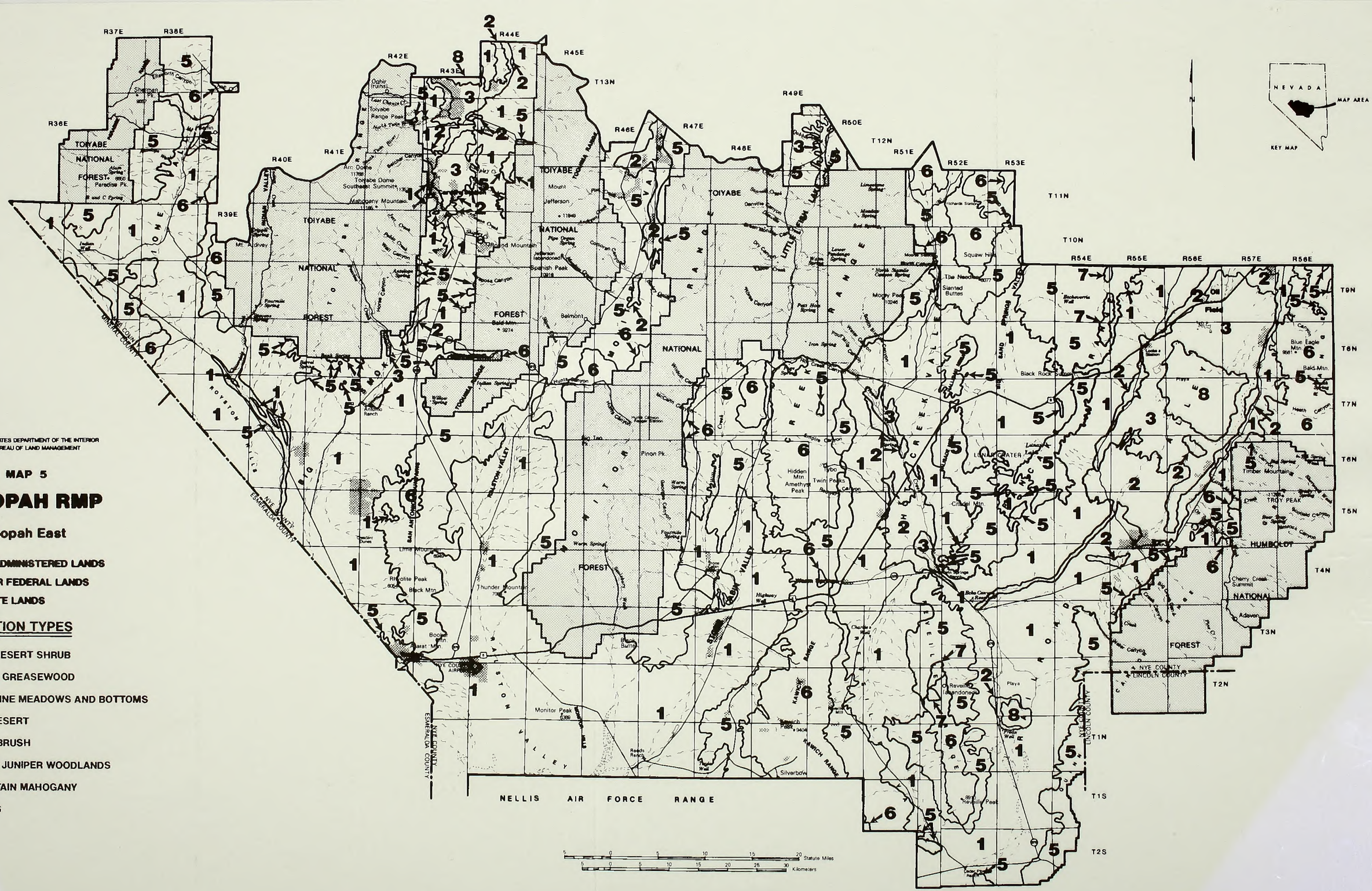
TONOPAH RMP

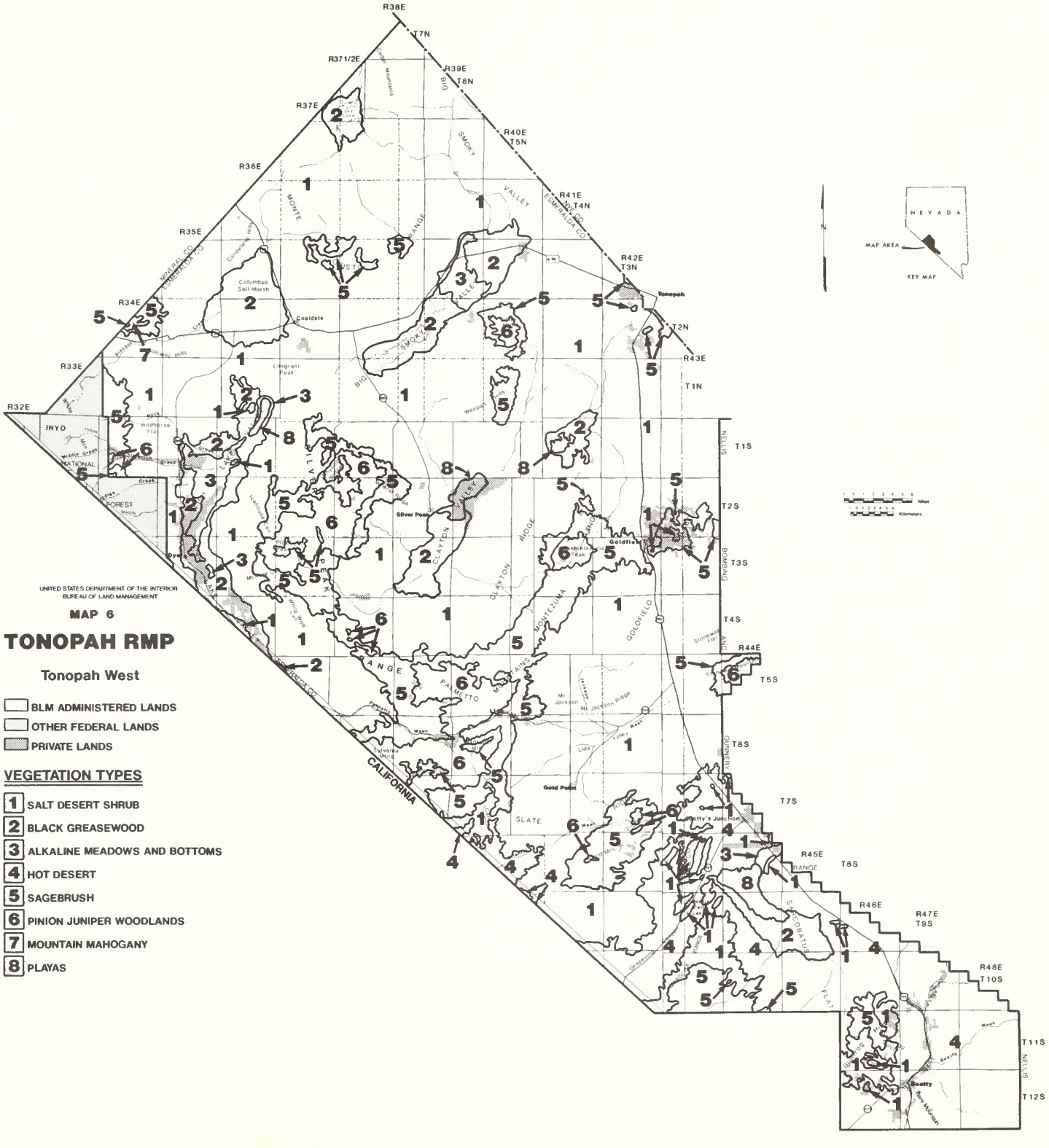
Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

VEGETATION TYPES

1. SALT DESERT SHRUB
2. BLACK GREASEWOOD
3. ALKALINE MEADOWS AND BOTTOMS
4. HOT DESERT
5. SAGE BRUSH
6. PINION JUNIPER WOODLANDS
7. MOUNTAIN MAHOGANY
8. PLAYAS





UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 6

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

VEGETATION TYPES

1. SALT DESERT SHRUB
2. BLACK GREASEWOOD
3. ALKALINE MEADOWS AND BOTTOMS
4. HOT DESERT
5. SAGEBRUSH
6. PINION JUNIPER WOODLANDS
7. MOUNTAIN MAHOGANY
8. PLAYAS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 7

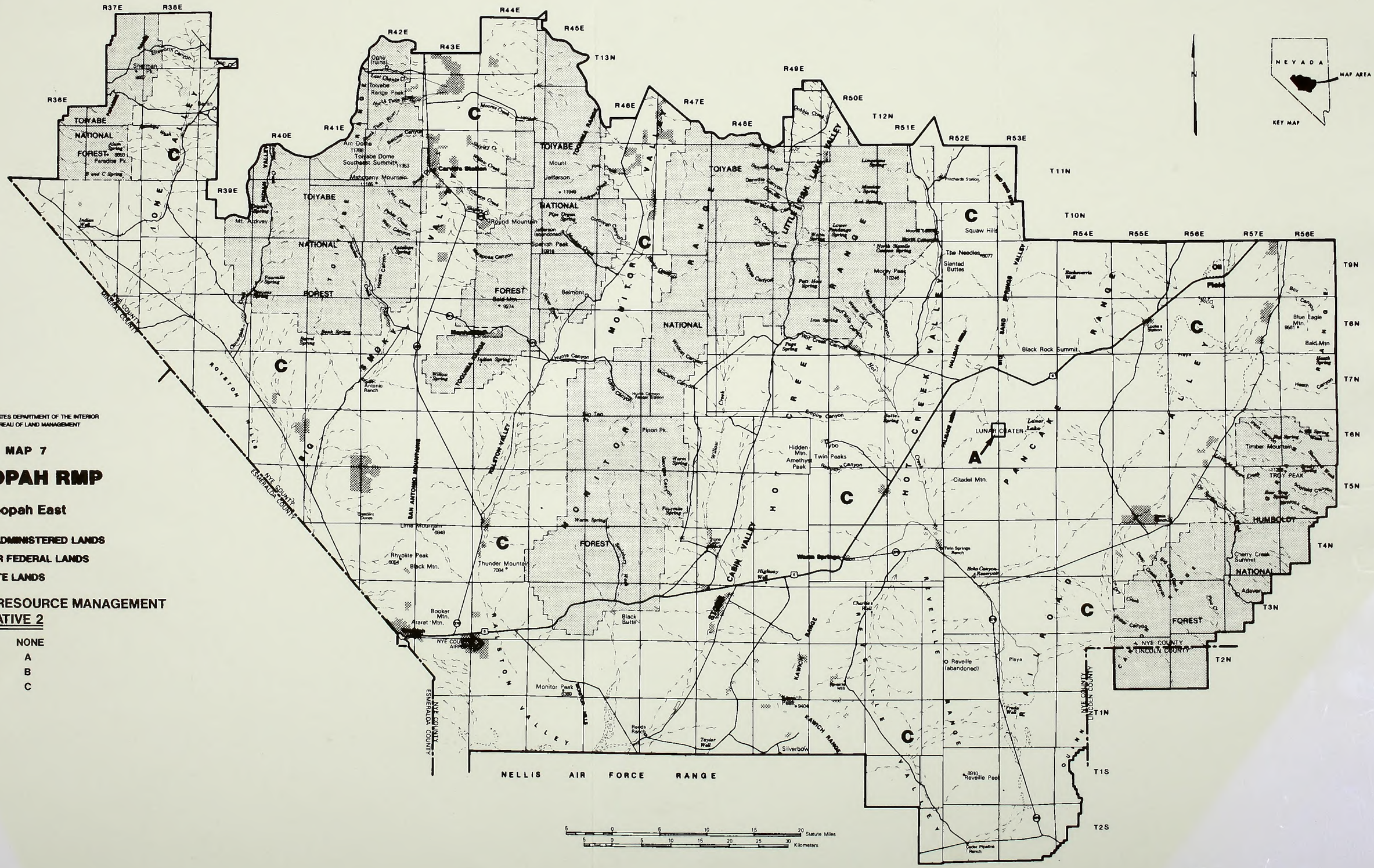
TONOPAH RMP

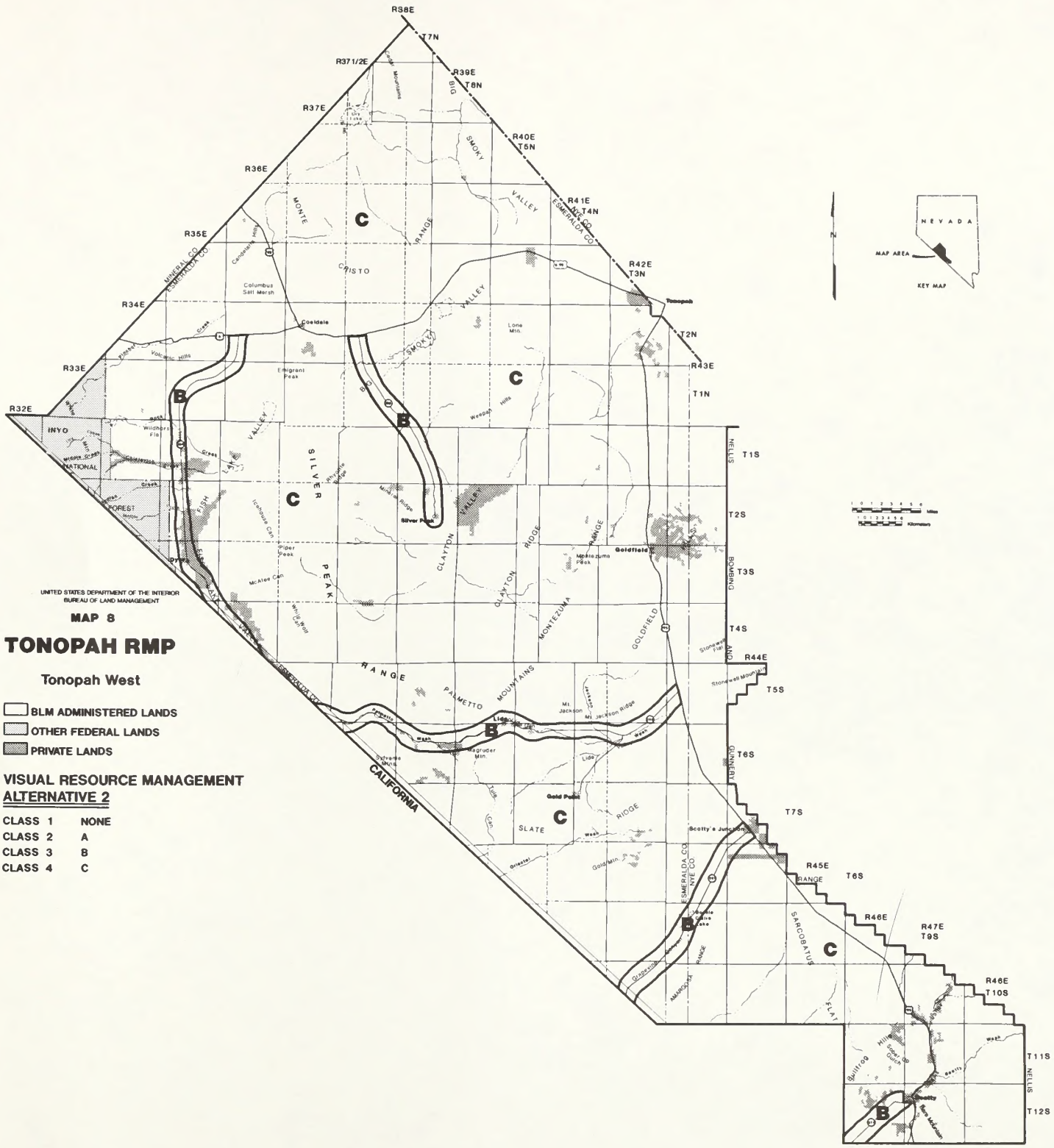
Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

VISUAL RESOURCE MANAGEMENT
ALTERNATIVE 2

CLASS 1	NONE
CLASS 2	A
CLASS 3	B
CLASS 4	C




R38E
T7N
R37 1/2E
R39E
T6N
R37E
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T5N
R36E
R41E
T4N
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R42E
T3N
R34E
T2N
R33E
R43E
T1N
R32E
T1S
T2S
T3S
T4S
R44E
T5S
T6S
T7S
R45E
T6S
R46E
R47E
T9S
R46E
T10S
T11S
T12S
NEVADA
MAP AREA
KEY MAP
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 8
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
VISUAL RESOURCE MANAGEMENT
ALTERNATIVE 2
CLASS 1 NONE
CLASS 2 A
CLASS 3 B
CLASS 4 C
CALIFORNIA
NEVADA

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 9

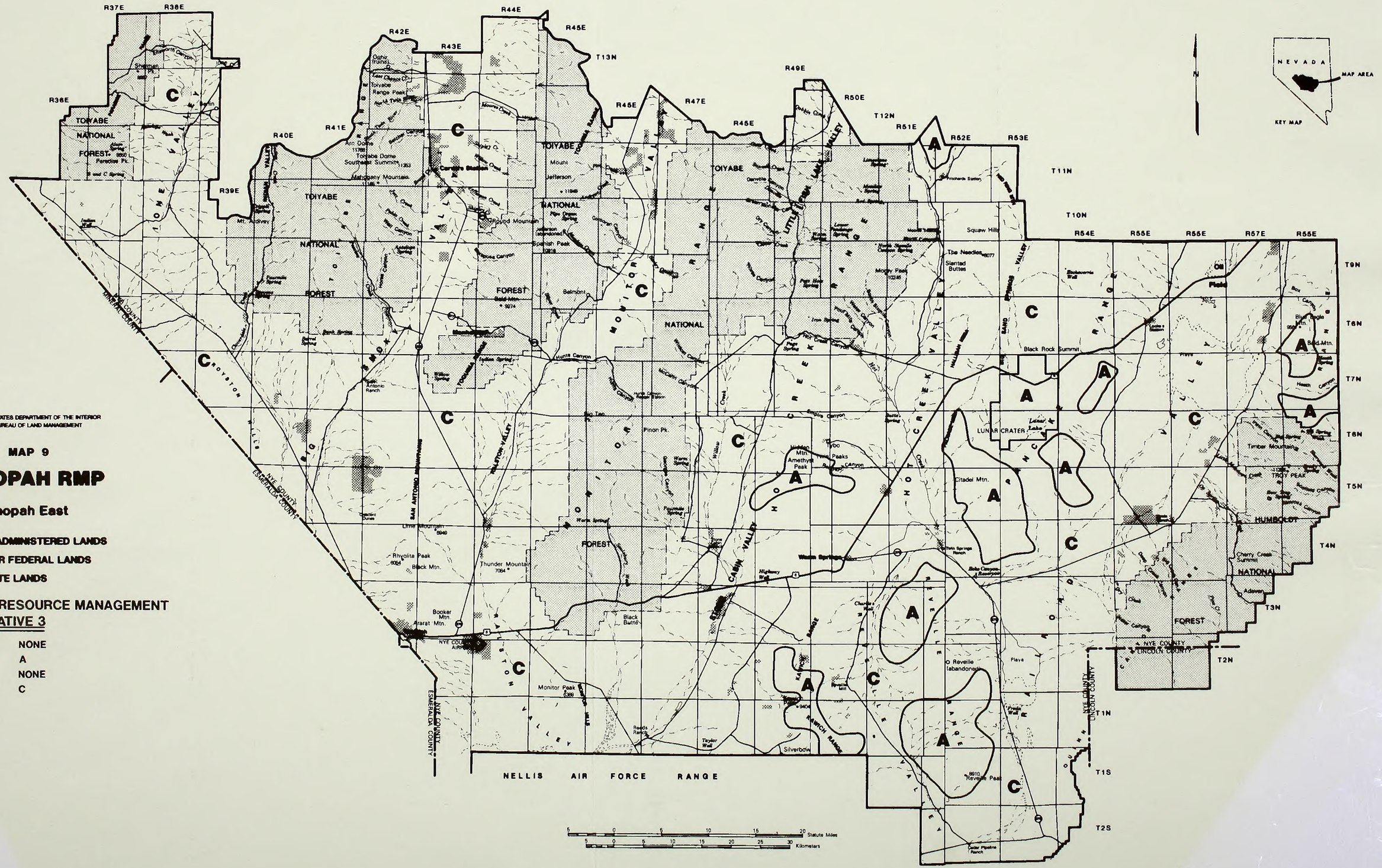
TONOPAH RMP

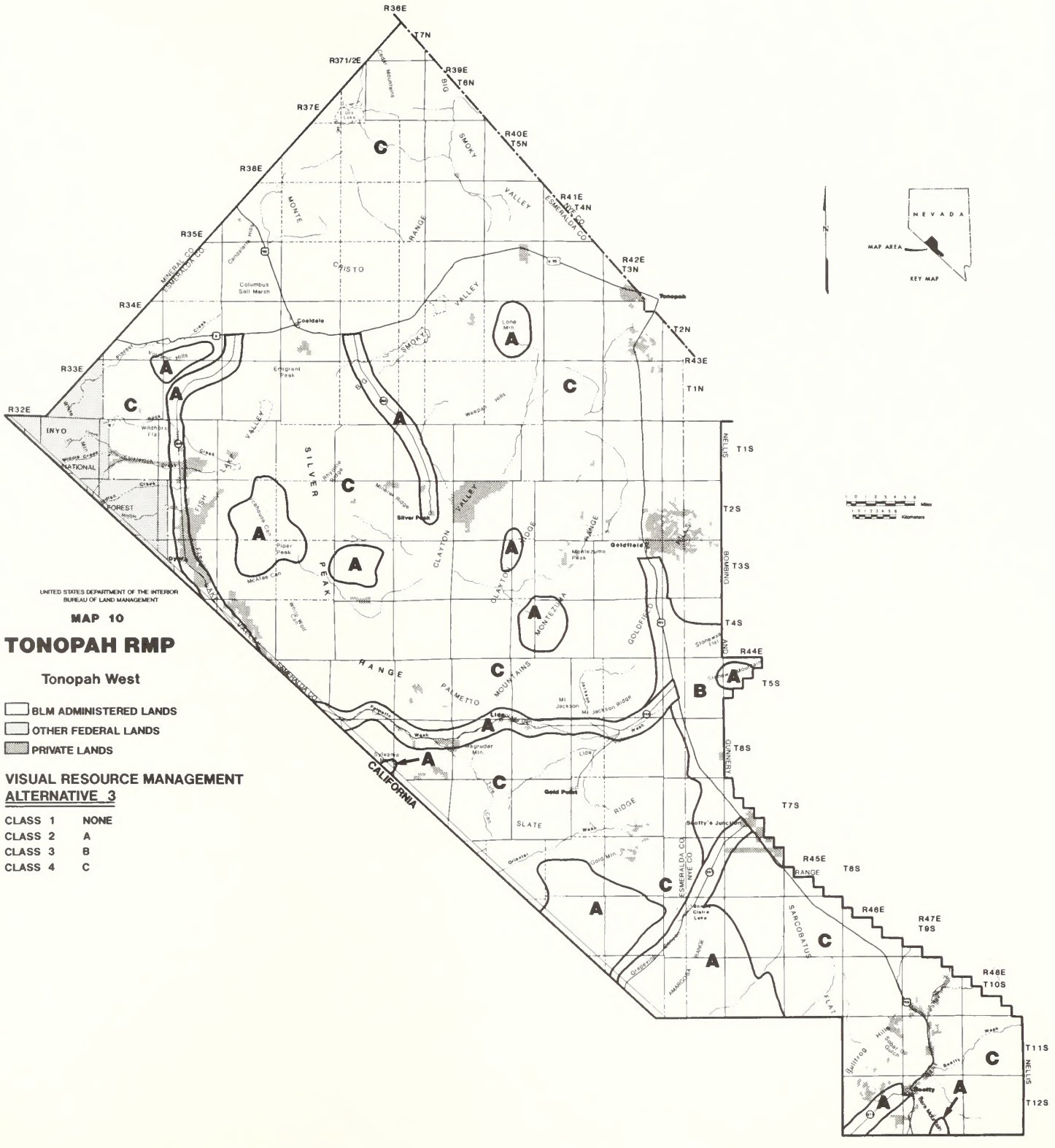
Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

VISUAL RESOURCE MANAGEMENT
ALTERNATIVE 3

CLASS 1	NONE
CLASS 2	A
CLASS 3	NONE
CLASS 4	C





UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 10

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

VISUAL RESOURCE MANAGEMENT
ALTERNATIVE 3

CLASS 1	NONE
CLASS 2	A
CLASS 3	B
CLASS 4	C

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 11

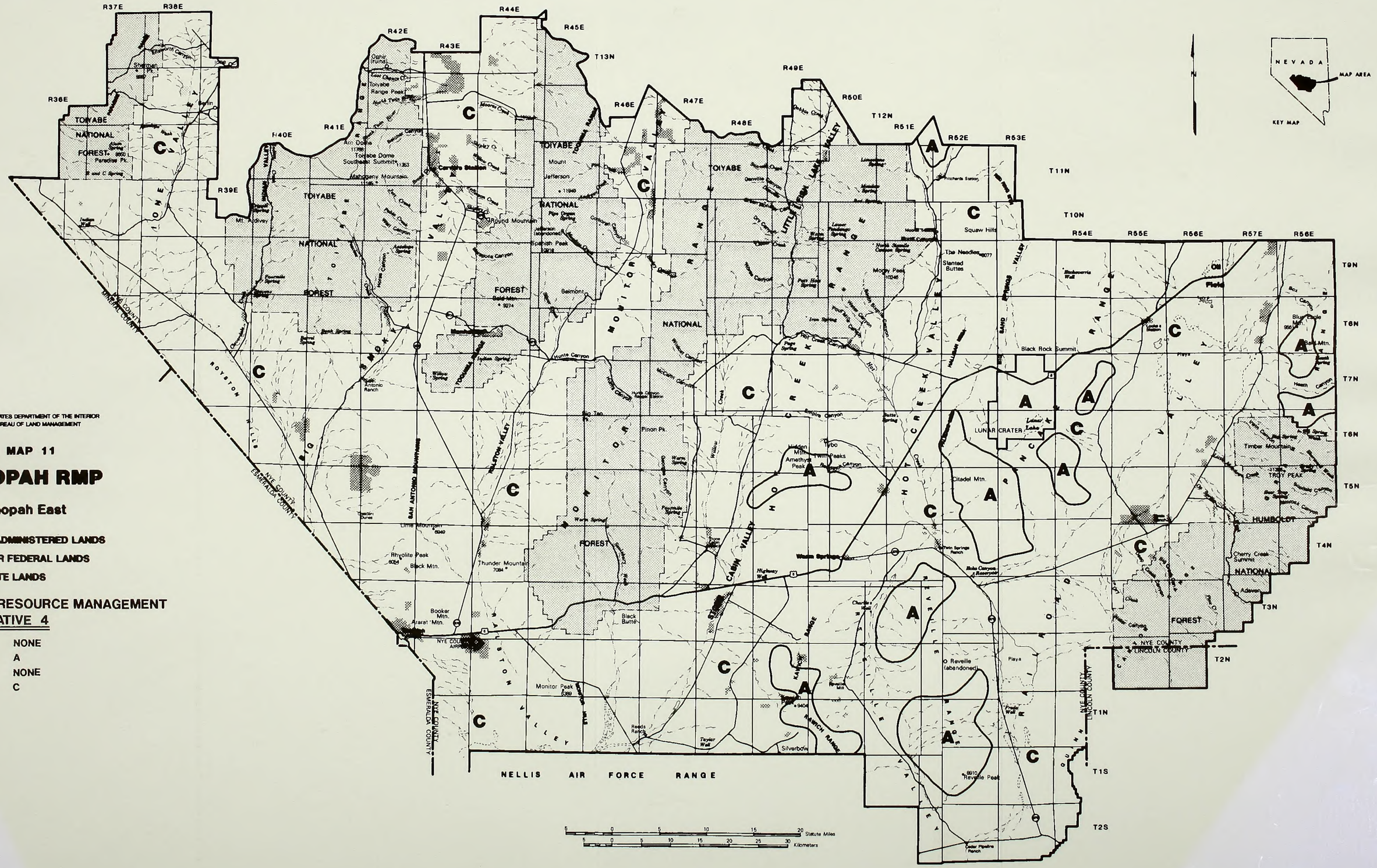
TONOPAH RMP

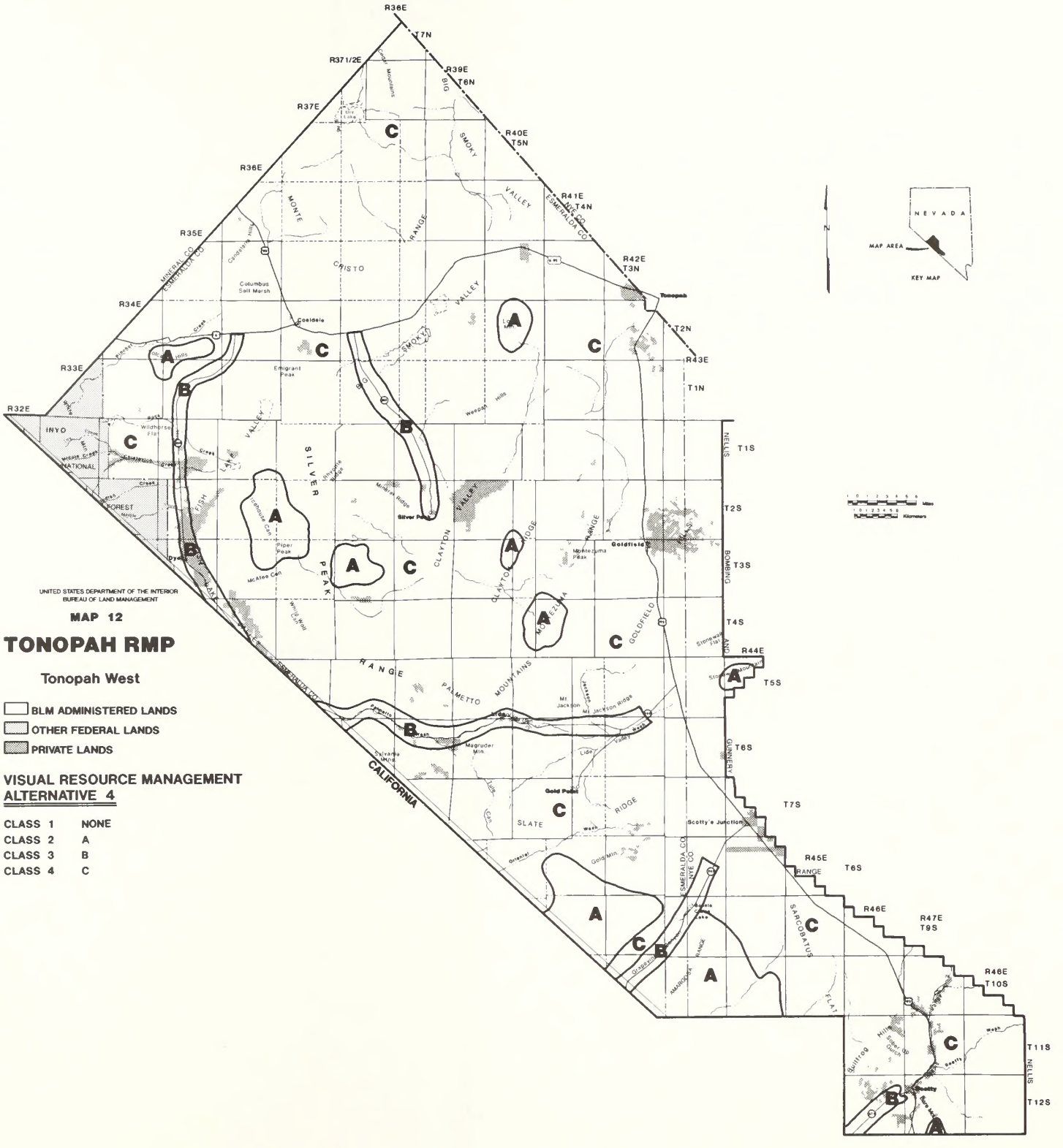
Tonopah East

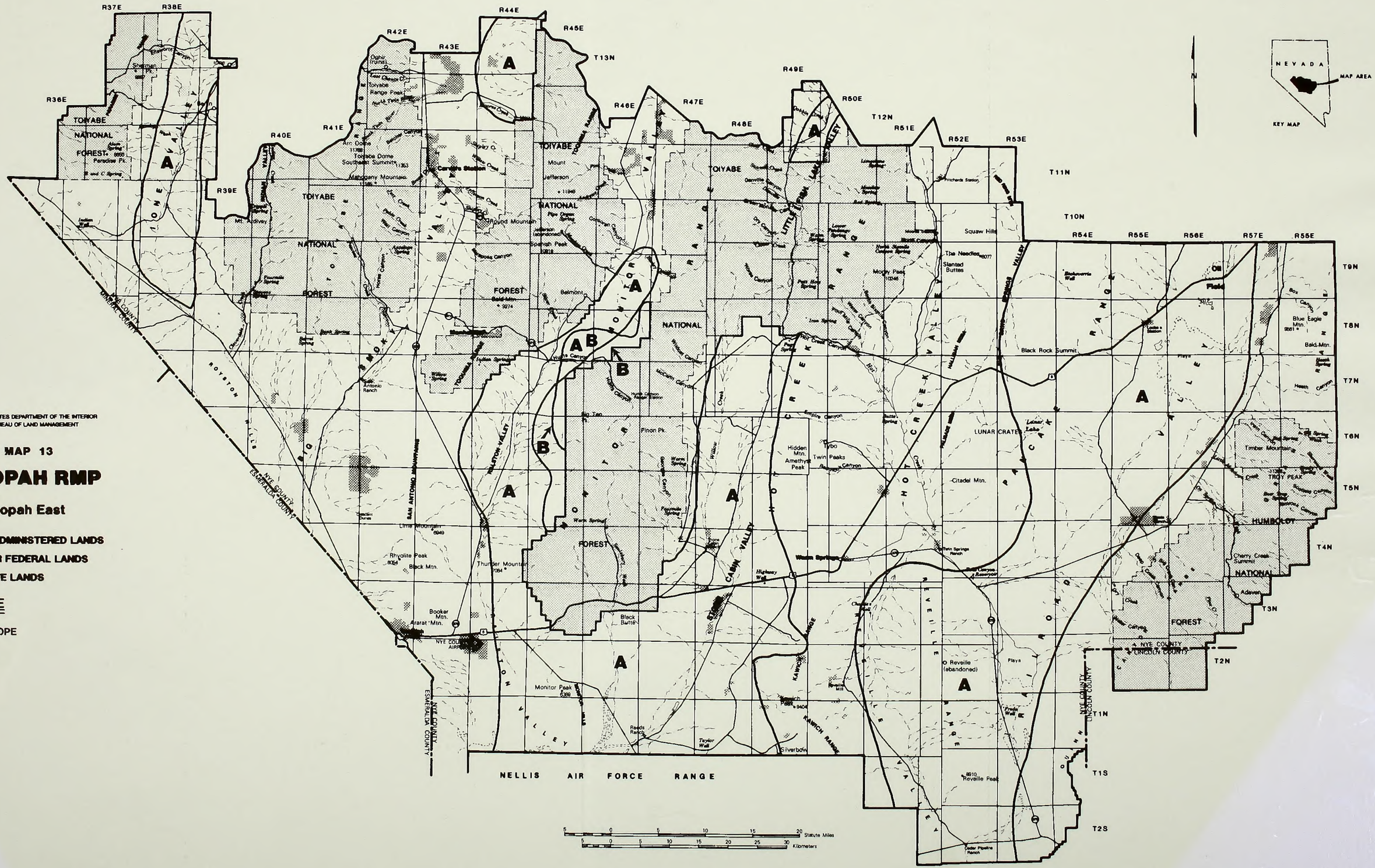
- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

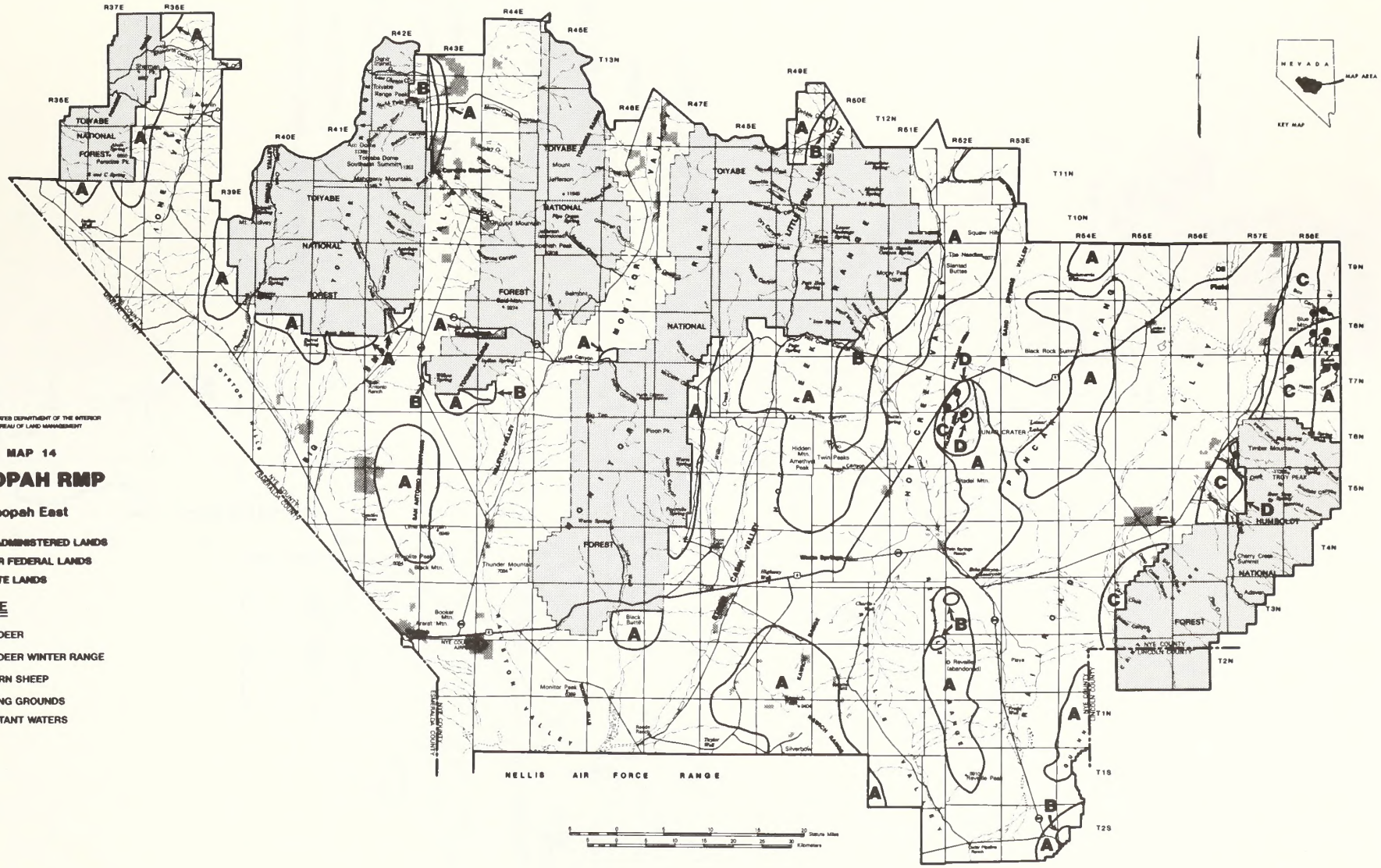
VISUAL RESOURCE MANAGEMENT
ALTERNATIVE 4

CLASS 1	NONE
CLASS 2	A
CLASS 3	NONE
CLASS 4	C




R36E
T7N
R37 1/2E
R39E
T6N
R37E
R40E
T5N
R36E
R41E
T4N
R35E
R42E
T3N
R34E
T2N
R43E
R33E
T1N
R32E
R44E
T5S
T6S
T7S
R45E
R46E
R47E
T9S
R46E
T10S
T11S
T12S
R36E
T7N
R37 1/2E
R39E
T6N
R37E
R40E
T5N
R36E
R41E
T4N
R35E
R42E
T3N
R34E
T2N
R43E
R33E
T1N
R32E
R44E
T5S
T6S
T7S
R45E
R46E
R47E
T9S
R46E
T10S
T11S
T12S
NEVADA
MAP AREA
KEY MAP
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 12
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
VISUAL RESOURCE MANAGEMENT
ALTERNATIVE 4
CLASS 1 NONE
CLASS 2 A
CLASS 3 B
CLASS 4 C


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 13
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
WILDLIFE
A ANTELOPE
B ELK
NEVADA
MAP AREA
KEY MAP
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
NYE COUNTY
ESMERALDA COUNTY
LINCOLN COUNTY
Statute Miles
Kilometers


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 14
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
WILDLIFE
A MULE DEER
B MULE DEER WINTER RANGE
C BIGHORN SHEEP
D LAMBING GROUNDS
IMPORTANT WATERS
NEVADA
MAP AREA
KEY MAP
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
HUMBOLDT NATIONAL FOREST
Black Rock Summit
Black Butte
Thunder Mountain
Monitor Peak
Silverbolt
Hidden Mtn.
Twin Peaks
Timber Mountain
Cherry Creek Summit
Adavan
Square Hills
Stamp Mill
Kilometers
Statute Miles

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 15

TONOPAH RMP

Tonopah East

BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS

WILDLIFE

A SAGE GROUSE DISTRIBUTION
B IMPORTANT SAGE GROUSE HABITAT

NEVADA
MAP AREA
KEY MAP

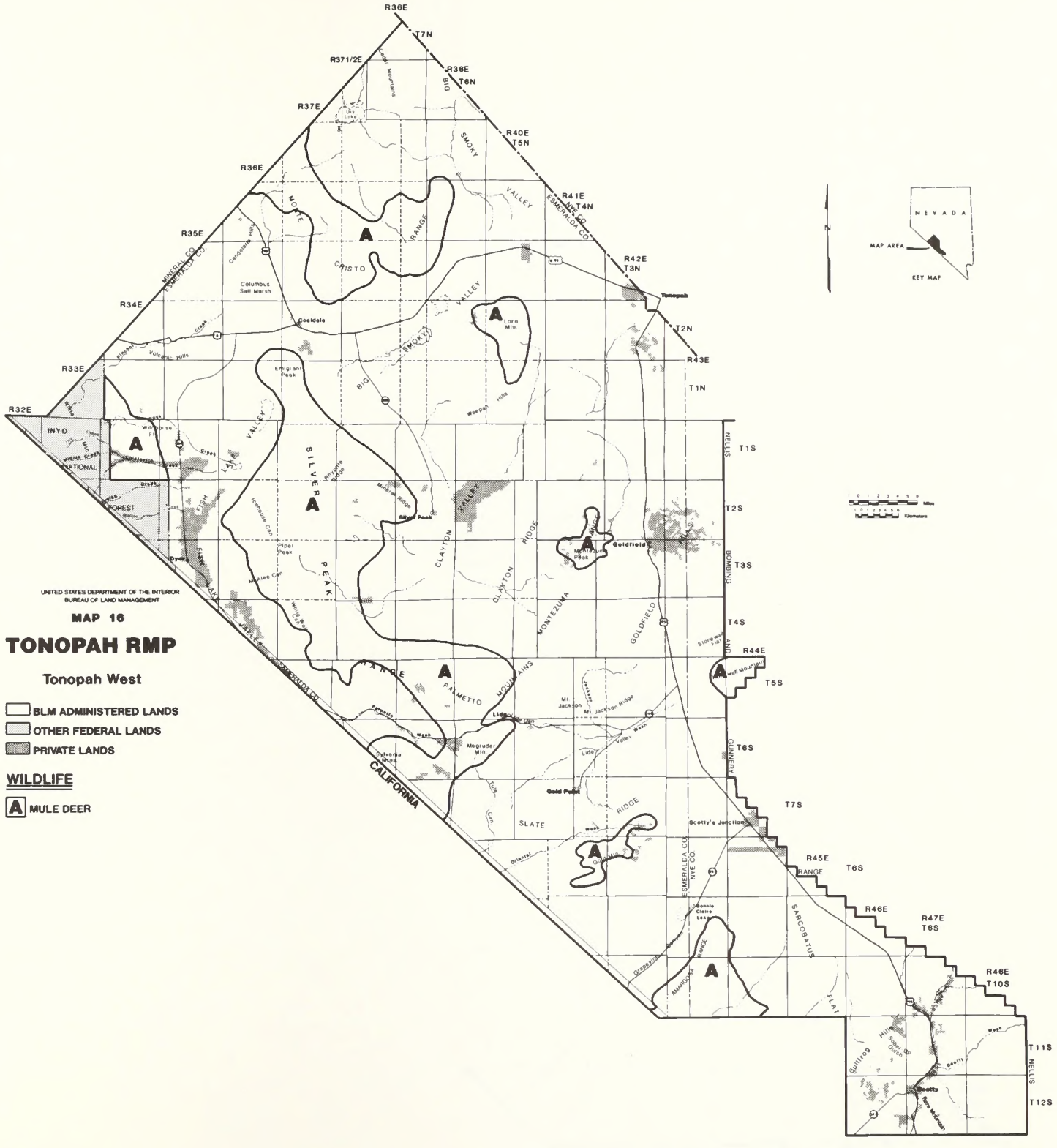
N

R37E R38E R42E R43E R44E R45E R49E R50E R51E R52E R53E R54E R55E R56E R57E R58E
R36E R40E R41E R45E R47E R48E
T13N T12N T11N T10N T9N T5N T7N T6N T5N T4N T3N T2N T1N T1S T2S
R39E

TOIYABE NATIONAL FOREST
TOIYABE RANGE
TOIYABE VALLEY
ALKALI VALLEY
ROYSTON HILLS
BIG SMOKY VALLEY
TONOPAH
ANTONIO MOUNTAINS
TRIPLE B RANCH
ANTELOPE VALLEY
MONTE CRISTO RANGE
LITTLE FISH LAKE VALLEY
PANCAKE RANGE
HOT CREEK RANGE
HOT CREEK VALLEY
CAVE VALLEY
CLAYTON VALLEY
CACTUS FLAT
CACTUS RANGE
CACTUS PLAIN
CABIN VALLEY
KAWICH RANGE
RAWICH RANGE
RAILROAD VALLEY
PAHRANAGAT VALLEY
HUMBOLDT NATIONAL FOREST
NELLIS AIR FORCE RANGE
NYE COUNTY
ESMERALDA COUNTY
MINERAL COUNTY
LINCOLN COUNTY

Oddie Tunnel
Toiyabe Range Peak
Arc Dome 11788
Toiyabe Dome Southeast Summit 11353
Mahogany Mountain 11467
Mt. Aldwey
Ground Mountain
Mount Jefferson 11949
Pipe Organ Spring
Anderson Independent Reservoir
Spanish Peak 9818
Bald Mtn. 9274
Belmont
Antonio Ranch
Pinon Pk.
Big Tao Pk.
Empire Canyon
Hidden Mtn.
Amethyst Peak
Twin Peaks
Citadel Mtn.
Lime Mountain 6949
Rhyolite Peak 6054
Black Mtn.
Thunder Mountain 7084
Booker Mtn.
Ararat Mtn.
Black Butte
Monitor Peak 8389
Reeds Ranch
Taylor Well
Silverbow
Kawich Peak 9408
Reveille (abandoned)
Playa
8910 Reveille Peak
Cedar Pipeline Ranch
Squaw Hills
The Needles 8077
Slanted Buttes
Mogby Peak 10246
Black Rock Summit
LUNAR CRATER
Oil Field
Blue Eagle Mtn. 5012
Bald Mtn.
Timber Mountain
TROY PEAK 11336
Cherry Creek Summit
Adaven
Warm Springs
Highway Well
Twin Springs Ranch
Blake Canyon Reservoir
Reveille Mtn.
Pinyon Wells
Oak Spring
Fourmile Spring
Barrel Spring
Willow Spring
Tybo
Toiyabe Range Peak
Ellsworth Canyon
Soldier Pk.
Paradise Pk.
Indian Wells
Union Spring
Fish Creek Spring
Lone Mtn.
Mt. Jefferson
Pipe Organ Spring
Anderson Independent Reservoir
Spanish Peak
Belmont
Bald Mtn.
Antonio Ranch
Pinon Pk.
Big Tao Pk.
Empire Canyon
Hidden Mtn.
Amethyst Peak
Twin Peaks
Citadel Mtn.
Lime Mountain
Rhyolite Peak
Black Mtn.
Thunder Mountain
Booker Mtn.
Ararat Mtn.
Black Butte
Monitor Peak
Reeds Ranch
Taylor Well
Silverbow
Kawich Peak
Reveille (abandoned)
Playa
8910 Reveille Peak
Cedar Pipeline Ranch
Squaw Hills
The Needles
Slanted Buttes
Mogby Peak
Black Rock Summit
LUNAR CRATER
Oil Field
Blue Eagle Mtn.
Bald Mtn.
Timber Mountain
TROY PEAK
Cherry Creek Summit
Adaven
Warm Springs
Highway Well
Twin Springs Ranch
Blake Canyon Reservoir
Reveille Mtn.
Pinyon Wells
Oak Spring
Fourmile Spring
Barrel Spring
Willow Spring
Tybo

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 16

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

WILDLIFE

A MULE DEER

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 17

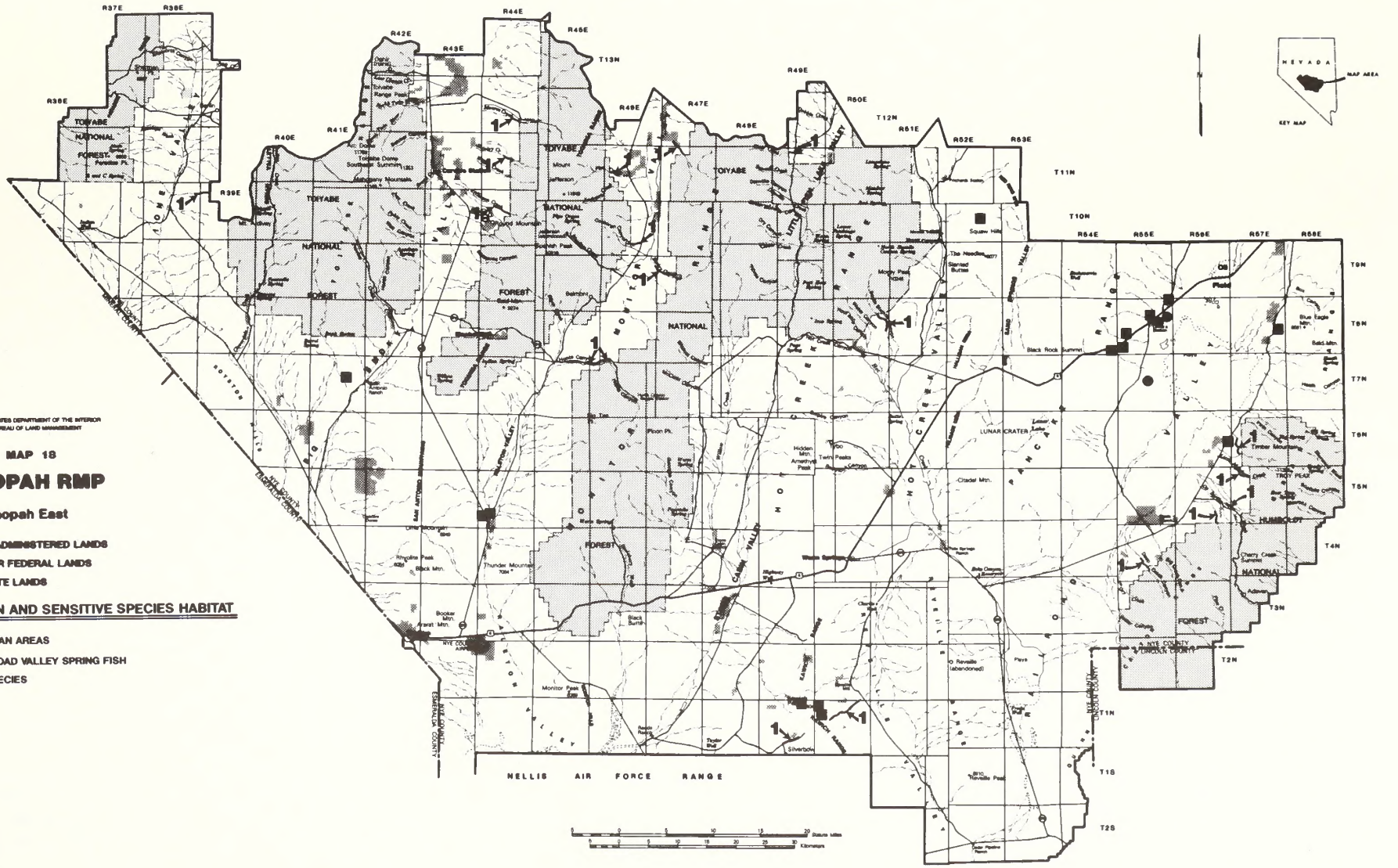
TONOPAH RMP

Tonopah West

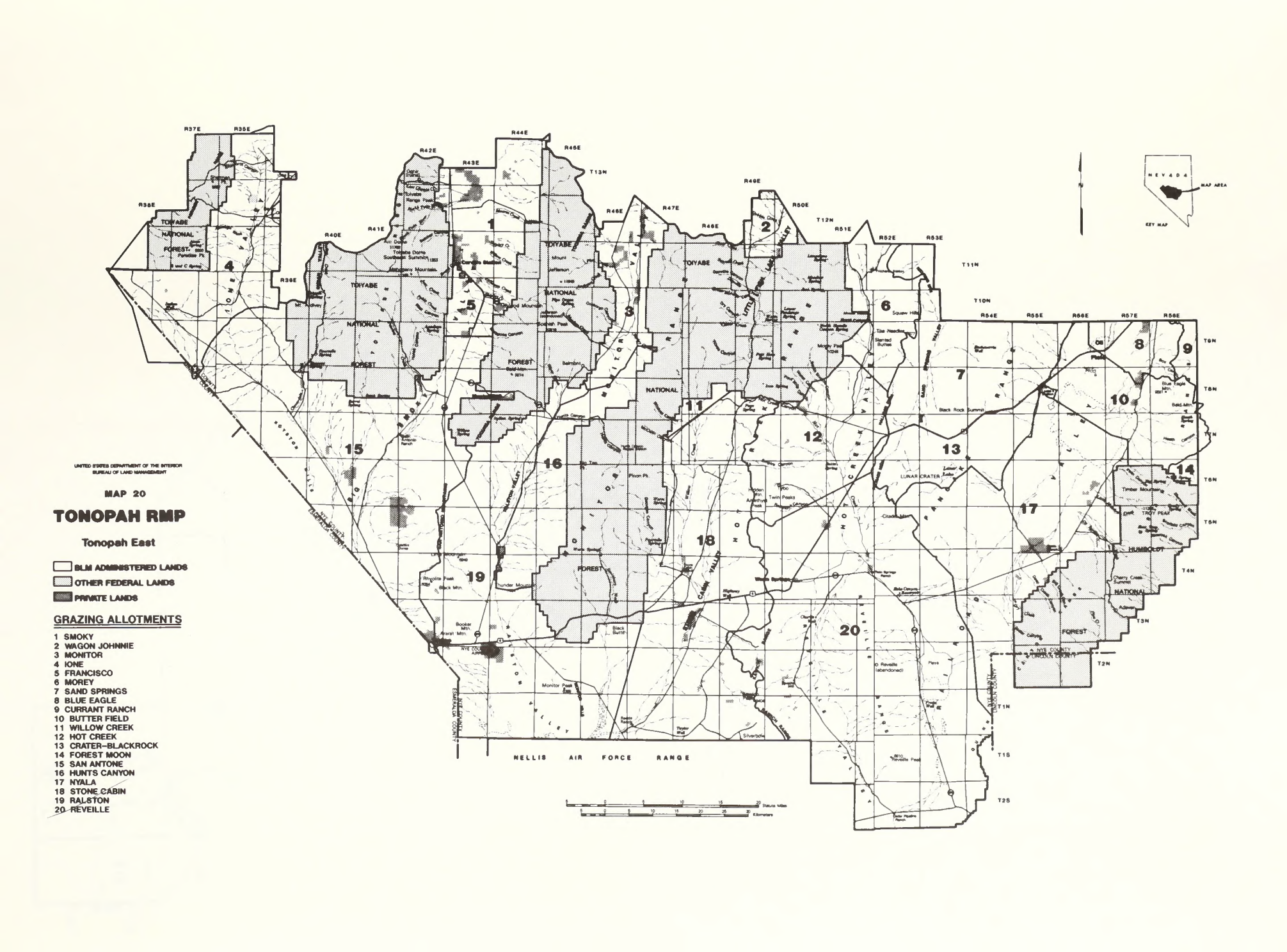
- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

WILDLIFE

- C BIGHORN SHEEP
- IMPORTANT WATERS


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 18
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
RIPARIAN AND SENSITIVE SPECIES HABITAT
1 RIPARIAN AREAS
RAILROAD VALLEY SPRING FISH
C2 SPECIES
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
HUMBOLDT NATIONAL FOREST
LUNAR CRATER
Black Rock Summit
Squaw Hills
Thunder Mountain
Silverbow
Reveille (abandoned)
NYE COUNTY
LINCOLN COUNTY
ESMERALDA COUNTY
NEVADA
MAP AREA
KEY MAP

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 19
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
RIPARIAN AND SENSITIVE SPECIES HABITAT
1 RIPARIAN AREAS
2 DESERT TORTOISE HABITAT
AMARGOSA TOAD
C2 SPECIES
NEVADA
MAP AREA
KEY MAP
N
Miles
Kilometers
CALIFORNIA
ESMERALDA CO.
NYE CO.
MINERAL CO.
INYO
NATIONAL
FOREST
Tonopah
Goldfield
Silver Peak
Lida
Gold Point
Scotty's Junction
Coaldale
Columbus Salt Marsh
BIG SMOKY VALLEY
MONTE CRISTO RANGE
SILVER PEAK RANGE
FISH LAKE VALLEY
CLAYTON VALLEY
CLAYTON RIDGE
MONTEZUMA RANGE
GOLDFIELD HILLS
PALMETTO MOUNTAINS
SLATE RIDGE
SARCOBATUS FLAT
AMARGOSA RANGE
NELLIS BOMBING AND GUNNERY RANGE
Weepah Hills
Mineral Ridge
Emigrant Peak
Piper Peak
Magruder Mtn.
Mt. Jackson
Mt. Jackson Ridge
Montezuma Peak
Stonewall Mountain
Stonewall Flat
Bonnie Claire Lake
Sylvania Mtns.
Lida Valley Wash
Bullfrog Hills
R32E
R33E
R34E
R35E
R36E
R37E
R37 1/2E
R38E
R39E
R40E
R41E
R42E
R43E
R44E
R45E
R46E
R47E
T7N
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
T6S
T7S
T8S
T9S
T10S
T11S
T12S


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 20
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
GRAZING ALLOTMENTS
1 SMOKY
2 WAGON JOHNNIE
3 MONITOR
4 IONE
5 FRANCISCO
6 MOREY
7 SAND SPRINGS
8 BLUE EAGLE
9 CURRANT RANCH
10 BUTTER FIELD
11 WILLOW CREEK
12 HOT CREEK
13 CRATER-BLACKROCK
14 FOREST MOON
15 SAN ANTONE
16 HUNTS CANYON
17 NYALA
18 STONE CABIN
19 RALSTON
20 REVEILLE
NELLIS AIR FORCE RANGE
KEY MAP
MAP AREA

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 21

TONOPAH RMP

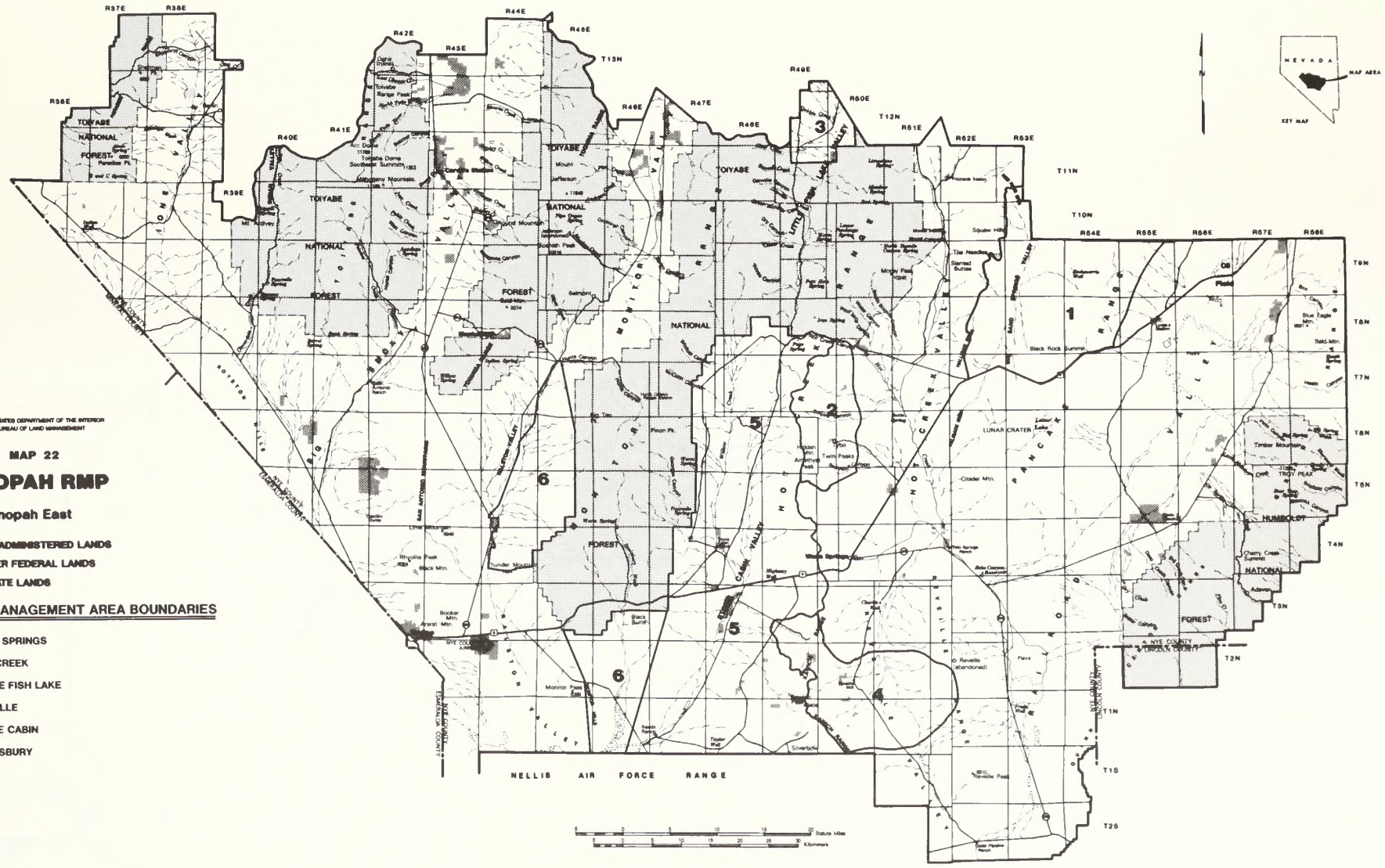
Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

GRAZING ALLOTMENTS

1 MONTE CRISTO
2 RED SPRINGS
3 UNALLOTED
4 ICEHOUSE
5 SILVER PEAK
6 WHITE WOLF
7 WHITE SAGE
8 SILVER KING
9 SHEEP MOUNTAIN
10 MONTEZUMA
11 YELLOW HILLS
12 MAGRUDER MOUNTAIN
13 SPRINGDALE #2
14 RAZORBACK
15 FISH LAKE VALLEY

NEVADA
MAP AREA
KEY MAP


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 22
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
HERD MANAGEMENT AREA BOUNDARIES
1 SAND SPRINGS
2 HOT CREEK
3 LITTLE FISH LAKE
4 REVEILLE
5 STONE CABIN
6 SAULSBURY
NELLIS AIR FORCE RANGE
NEVADA
MAP AREA
KEY MAP
TOIYABE NATIONAL FOREST
HUMBOLDT NATIONAL FOREST
LUNAR CRATER
Black Rock Summit
Citadel Mtn.
Reveille Peak
Silverbow
Monitor Pass
Black Butte
Thunder Mountain
Black Mtn.
Rhyolite Peak
Ararat Mtn.
Booker Mtn.
Pinon Pk.
Twin Peaks
Hidden Mtn.
Amethyst Peak
Tybo
Timber Mountain
Blue Eagle Mtn.
Bald Mtn.
Squaw Hills
The Needles
Slanted Buttes
Mogy Peak
Mt. Jefferson
Mt. Ashley
Toiyabe Dome
Southern Summits
Mahogany Mountain
Sheridan Peak
Gold Mtn.
Belmont
Ground Mountain
Jefferson
Mount
Oil Field
Cherry Creek Summit
Adaven
Reveille (abandoned)
Playa
Silverbow
Tipton Well
Reeds Ranch
Monitor Pass
Black Butte
Ararat Mtn.
Rhyolite Peak
Black Mtn.
Thunder Mountain
Little Mountain
Pinon Pk.
Big Tim
Wells Canyon
Wells Springs
Wells Springs Ranch
Hot Creek Valley
Little Fish Lake Valley
Sand Springs Valley
Pancake Range
Hot Creek Range
Monitor Range
Toiyabe Range
Sand Springs Range
Reveille Range
Kawich Range
Stone Cabin Valley
Saulsbury Valley
Big Smoky Valley
Monitor Valley
Ralston Valley
Ralston Wells
Ralston Wells Valley
Little Fish Lake Valley
Sand Springs Valley
Pancake Valley
Railroad Valley
Kawich Valley
Quinn Canyon Valley
Royston Wells
Royston Wells Valley
Big Smoky Valley
Tonopah Valley
Lone Valley
Mt. Ashley
Mt. Jefferson
Mount Jefferson
Sheridan Peak
Ground Mountain
Mahogany Mountain
Toiyabe Dome
Southern Summits
Tonopah Range
Pancake Range
Hot Creek Range
Little Fish Lake Valley
Sand Springs Valley
Hot Creek Valley
Stone Cabin Valley
Reveille Valley
Kawich Valley
Quinn Canyon Valley
Ralston Valley
Ralston Wells Valley
Big Smoky Valley
Tonopah Valley
Lone Valley
Nye County
Esmeralda County
Lincoln County
Nye County
Lincoln County
Nye County
Esmeralda County
Nye County
Lincoln County
R37E
R38E
R39E
R40E
R41E
R42E
R43E
R44E
R45E
R46E
R47E
R48E
R49E
R50E
R51E
R52E
R53E
R54E
R55E
R56E
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R58E
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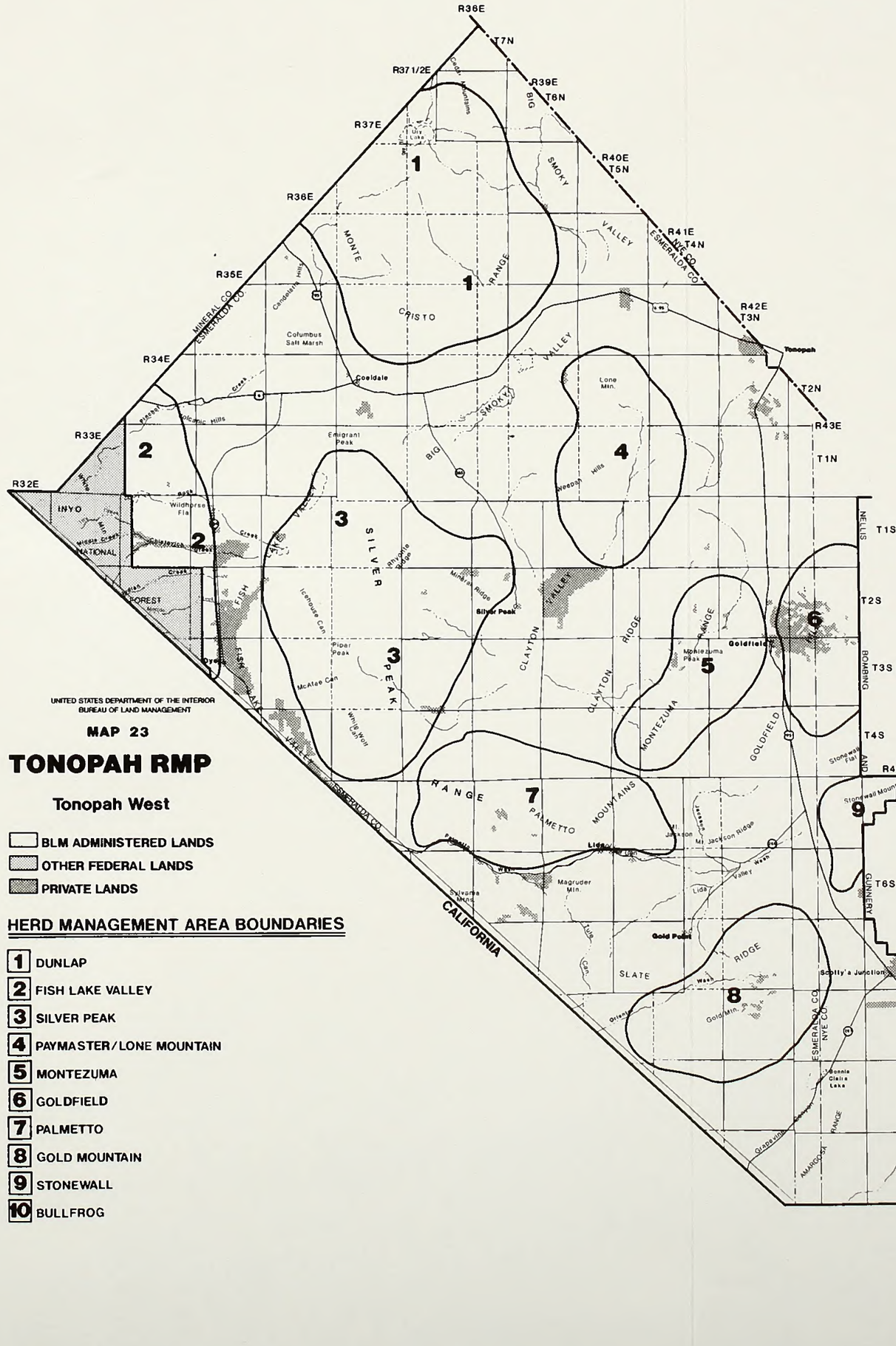
T12N
T11N
T10N
T9N
T8N
T7N
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
1
2
3
4
5
6
5
6
5
6
Statute Miles
Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 23

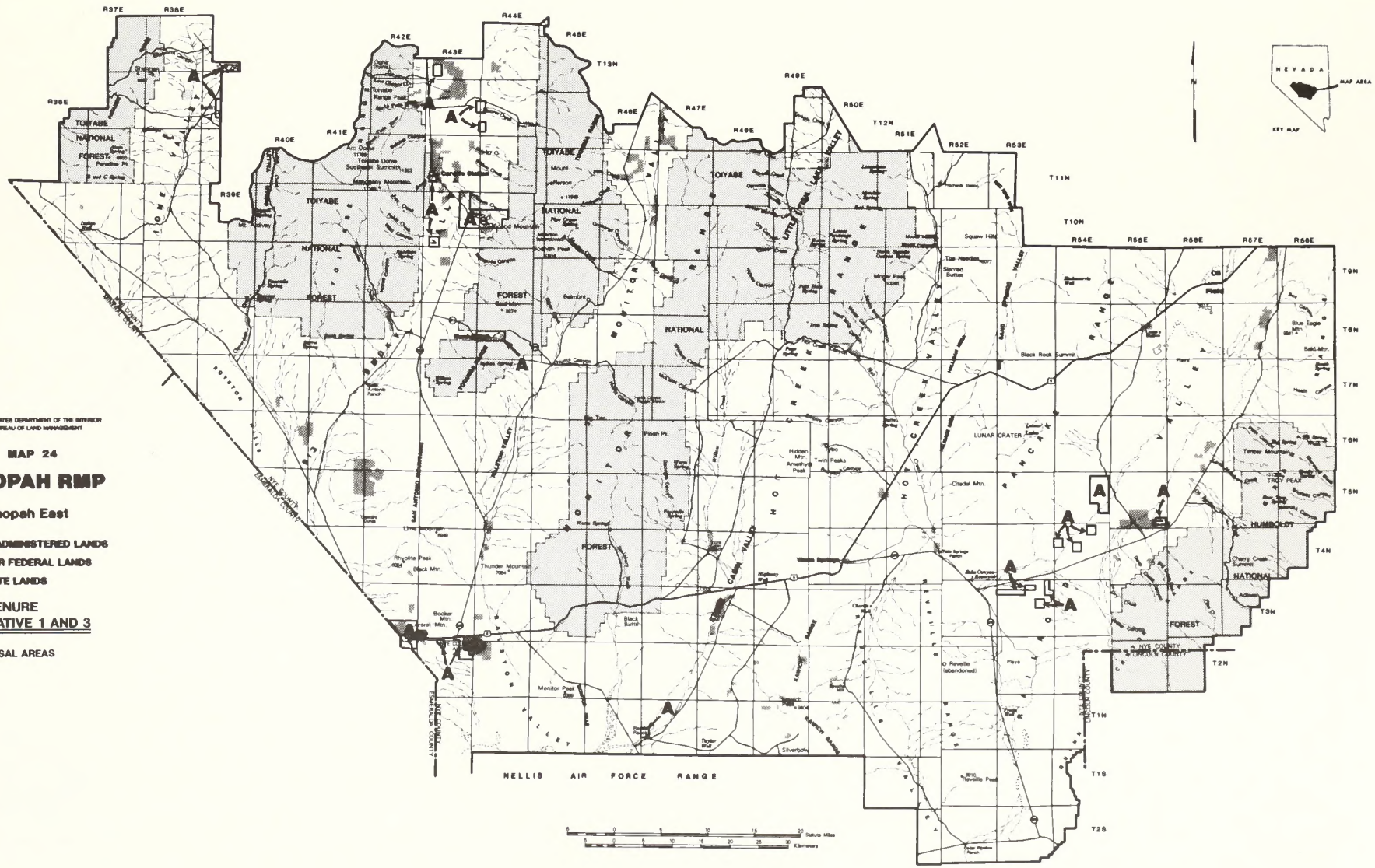
TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

HERD MANAGEMENT AREA BOUNDARIES

1. DUNLAP
2. FISH LAKE VALLEY
3. SILVER PEAK
4. PAYMASTER/LONE MOUNTAIN
5. MONTEZUMA
6. GOLDFIELD
7. PALMETTO
8. GOLD MOUNTAIN
9. STONEWALL
10. BULLFROG


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 24
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
LAND TENURE
ALTERNATIVE 1 AND 3
A DISPOSAL AREAS
NEVADA
MAP AREA
KEY MAP
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
LUNAR CRATER
HUMBOLDT NATIONAL FOREST
NYE COUNTY
LINCOLN COUNTY
ESMERALDA COUNTY
Statute Miles
Kilometers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 25

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

LAND TENURE AND CORRIDORS
ALTERNATIVE 1 AND 3

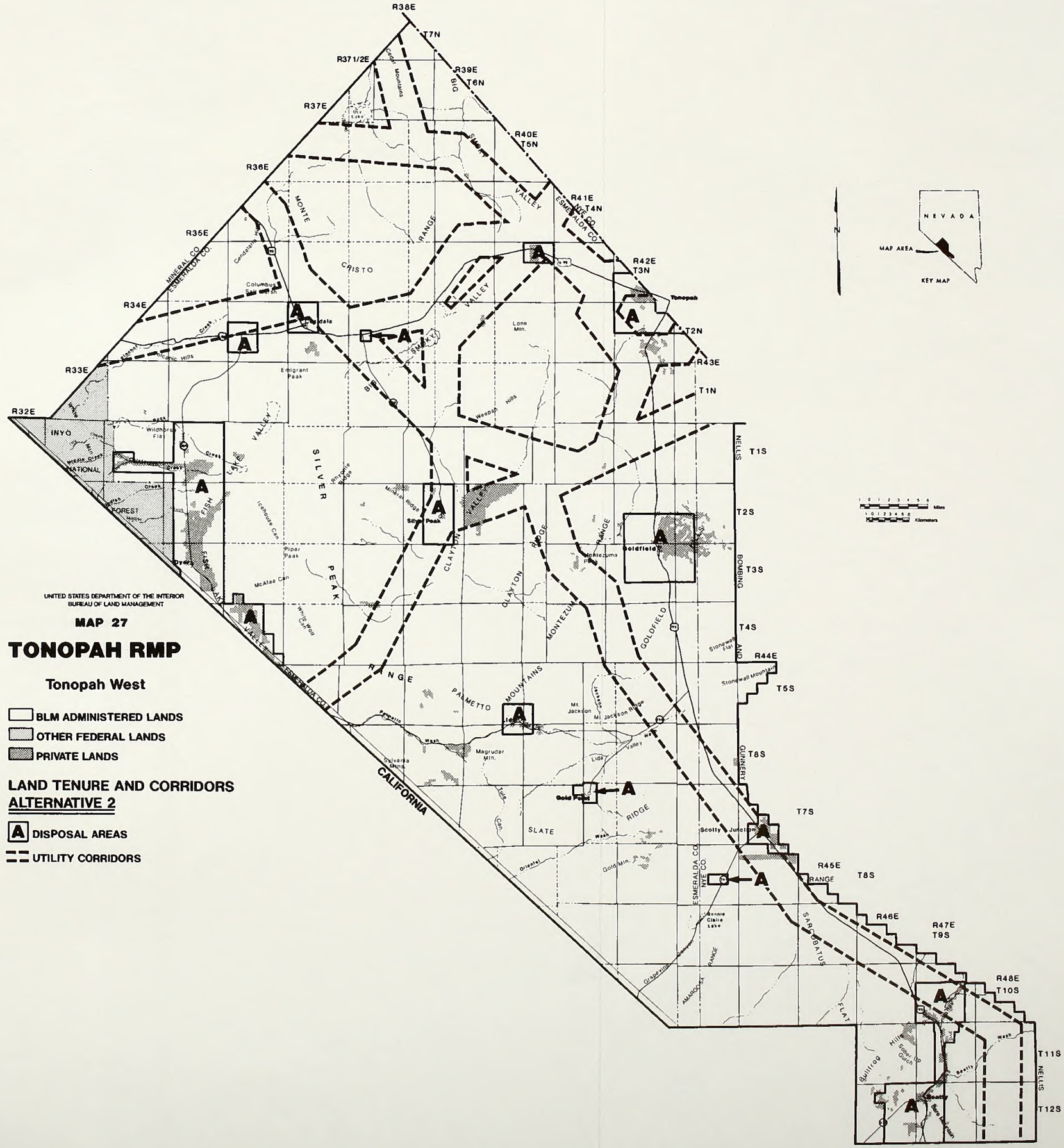
- A DISPOSAL AREAS
- UTILITY CORRIDORS

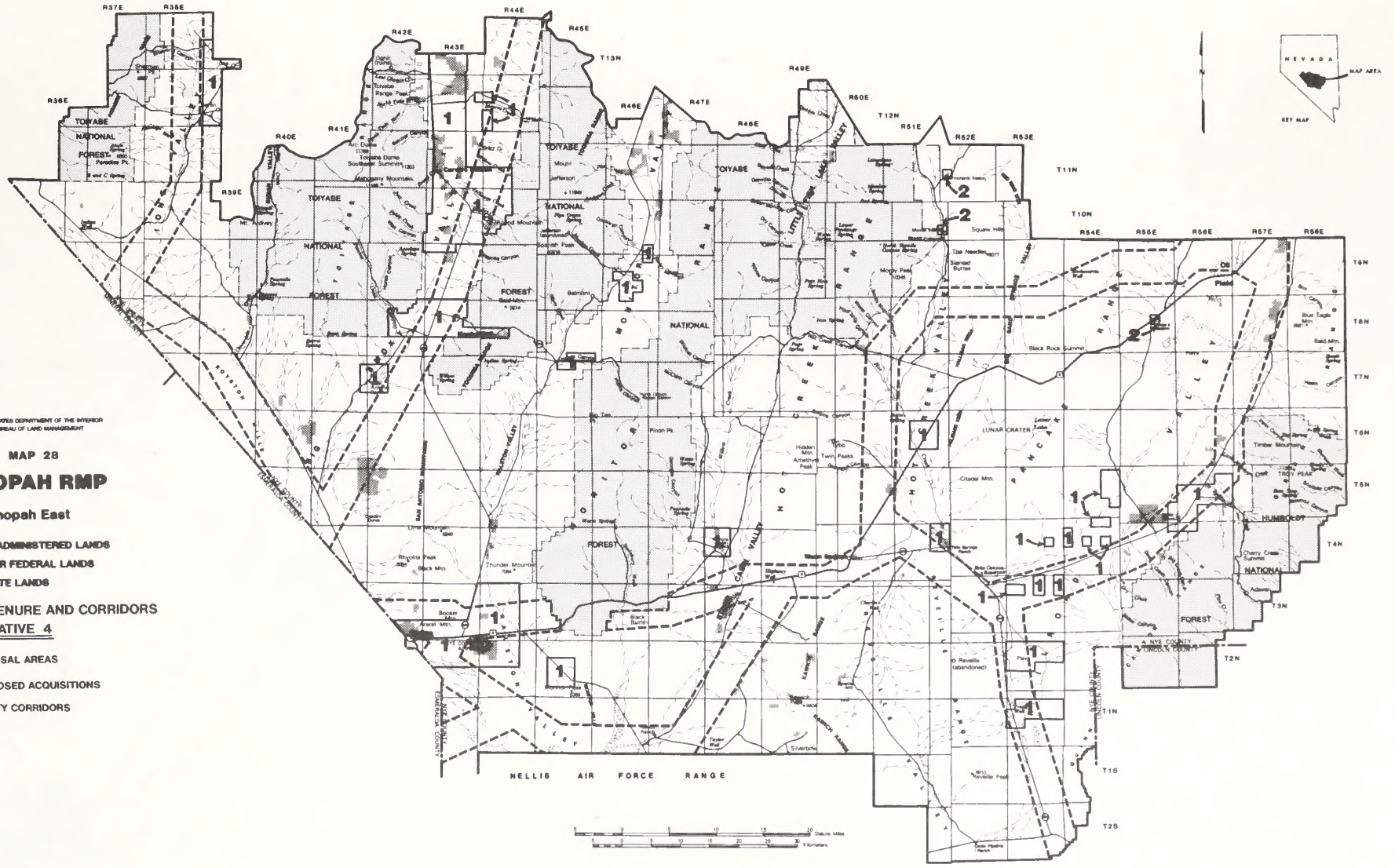
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 26

TONOPAH RMP

Tonopah East


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 27
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
LAND TENURE AND CORRIDORS
ALTERNATIVE 2
A DISPOSAL AREAS
UTILITY CORRIDORS
NEVADA
MAP AREA
KEY MAP
CALIFORNIA
INYO NATIONAL FOREST
SILVER PEAK RANGE
CLAYTON RIDGE
MONTEZUMA RANGE
GOLDFIELD
PALMETTO MOUNTAINS
SLATE RIDGE
SARCOBATUS FLAT
MONTE CRISTO RANGE
BIG SMOKY VALLEY
FISH LAKE VALLEY
Tonopah
Goldfield
Gold Point
Scotty Junction
Silver Peak
Lone Mtn.
Emigrant Peak
Columbus Salt Marsh
Magruder Mtn.
Mt. Jackson
Bonnie Claire Lake
Miles
Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 28

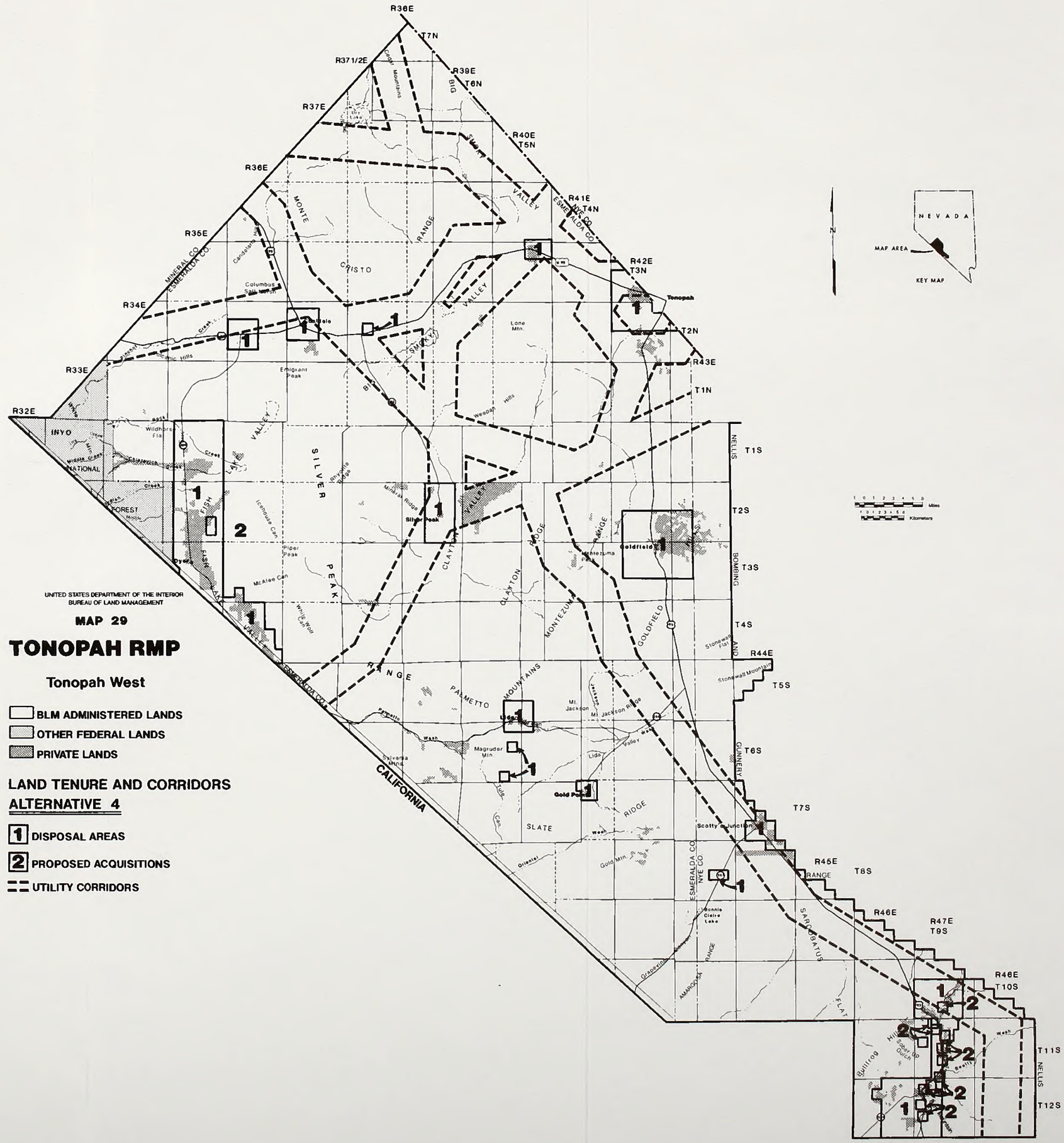
TONOPAH RMP

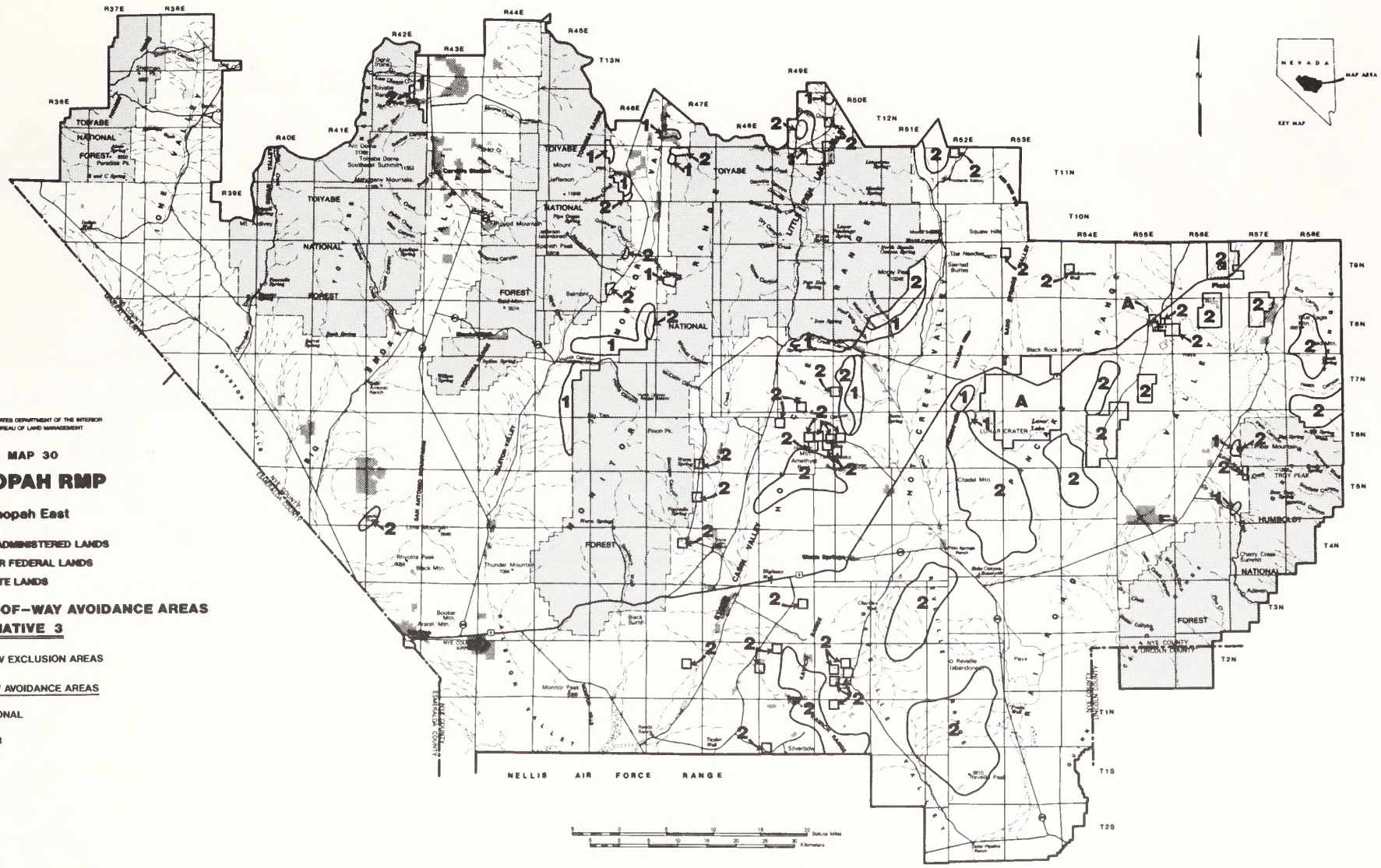
Tonopah East

BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS

LAND TENURE AND CORRIDORS
ALTERNATIVE 4

1 DISPOSAL AREAS
2 PROPOSED ACQUISITIONS
UTILITY CORRIDORS


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 29
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
LAND TENURE AND CORRIDORS
ALTERNATIVE 4
1 DISPOSAL AREAS
2 PROPOSED ACQUISITIONS
UTILITY CORRIDORS
NEVADA
MAP AREA
KEY MAP
CALIFORNIA
INYO
NATIONAL
FOREST
Tonopah
Goldfield
Silver Peak
Gold Point
Scotty's Junction
Columbus Salt Marsh
Emigrant Peak
Lone Mtn.
Weepah Hills
Magruder Mtn.
Mt. Jackson
Mt. Jackson Ridge
Sylvania Mtns.
Gold Mtn.
Bonnie Claire Lake
Miles
Kilometers


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 30
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
RIGHT-OF-WAY AVOIDANCE AREAS
ALTERNATIVE 3
A R-O-W EXCLUSION AREAS
R-O-W AVOIDANCE AREAS
1 SEASONAL
2 OTHER
NEVADA
MAP AREA
KEY MAP
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
NYE COUNTY
LINCOLN COUNTY
ESMERALDA COUNTY
HUMBOLDT NATIONAL FOREST
R37E
R38E
R39E
R40E
R41E
R42E
R43E
R44E
R45E
R46E
R47E
R48E
R49E
R50E
R51E
R52E
R53E
R54E
R55E
R56E
R57E
R58E
T13N
T12N
T11N
T10N
T9N
T8N
T7N
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 33

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

RIGHT-OF-WAY AVOIDANCE AREAS ALTERNATIVE 4

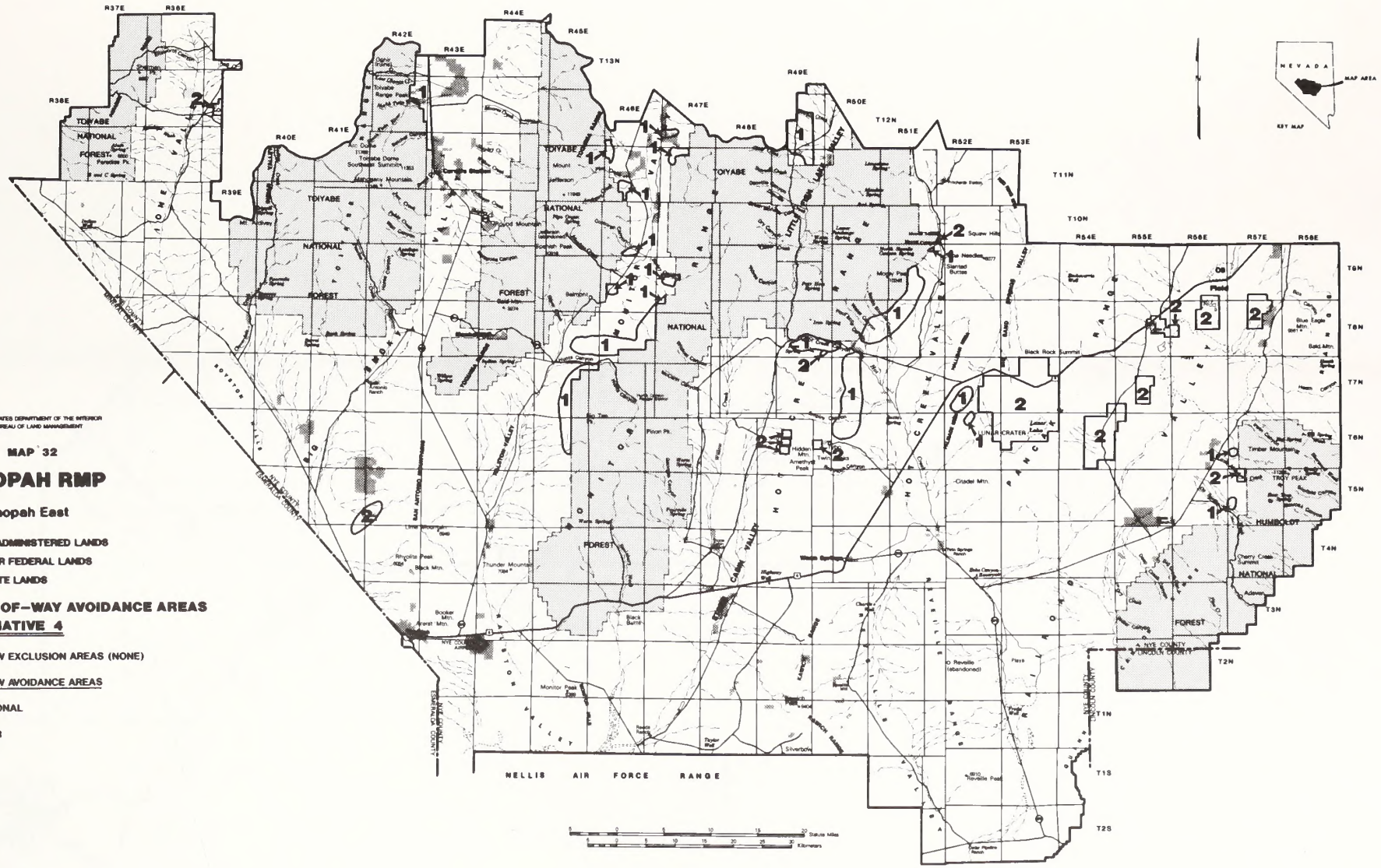
R-O-W EXCLUSION AREAS (NONE)

R-O-W AVOIDANCE AREAS

1 SEASONAL

2 OTHER

3 ROAD RESTRICTIONS (DESERT TORTOISE)


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 32
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
RIGHT-OF-WAY AVOIDANCE AREAS
ALTERNATIVE 4
R-O-W EXCLUSION AREAS (NONE)
R-O-W AVOIDANCE AREAS
1 SEASONAL
2 OTHER
NEVADA
MAP AREA
KEY MAP
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
Statute Miles
Kilometers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 35

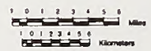
TONOPAH RMP

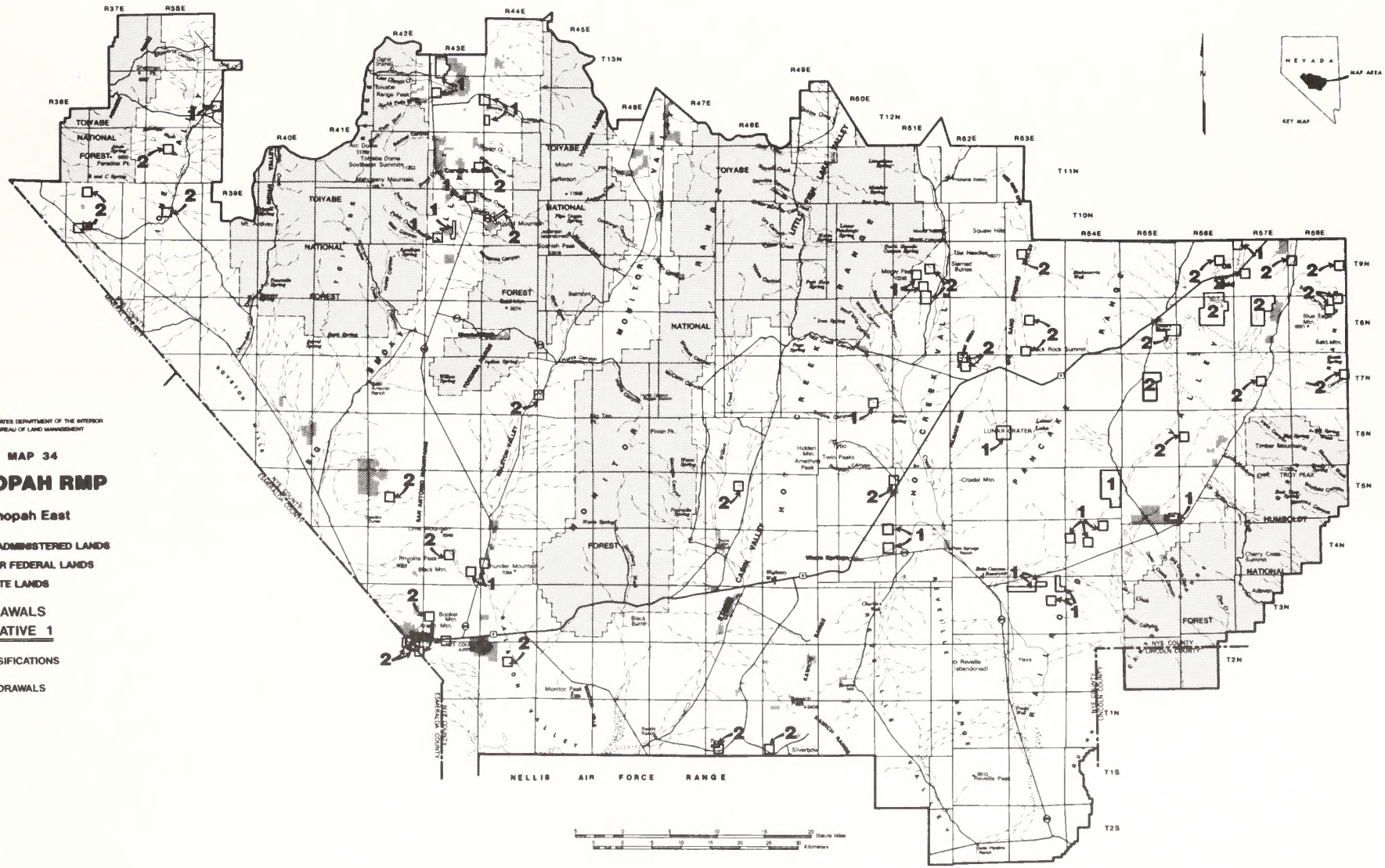
Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

WITHDRAWALS
ALTERNATIVES 1 AND 2

- 1 CLASSIFICATIONS
- 2 WITHDRAWALS




UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 34
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
WITHDRAWALS
ALTERNATIVE 1
1 CLASSIFICATIONS
2 WITHDRAWALS
NEVADA
MAP AREA
KEY MAP
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
HUMBOLDT NATIONAL FOREST
NYE COUNTY
LINCOLN COUNTY
ESMERALDA COUNTY
Statute Miles
Kilometers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 37

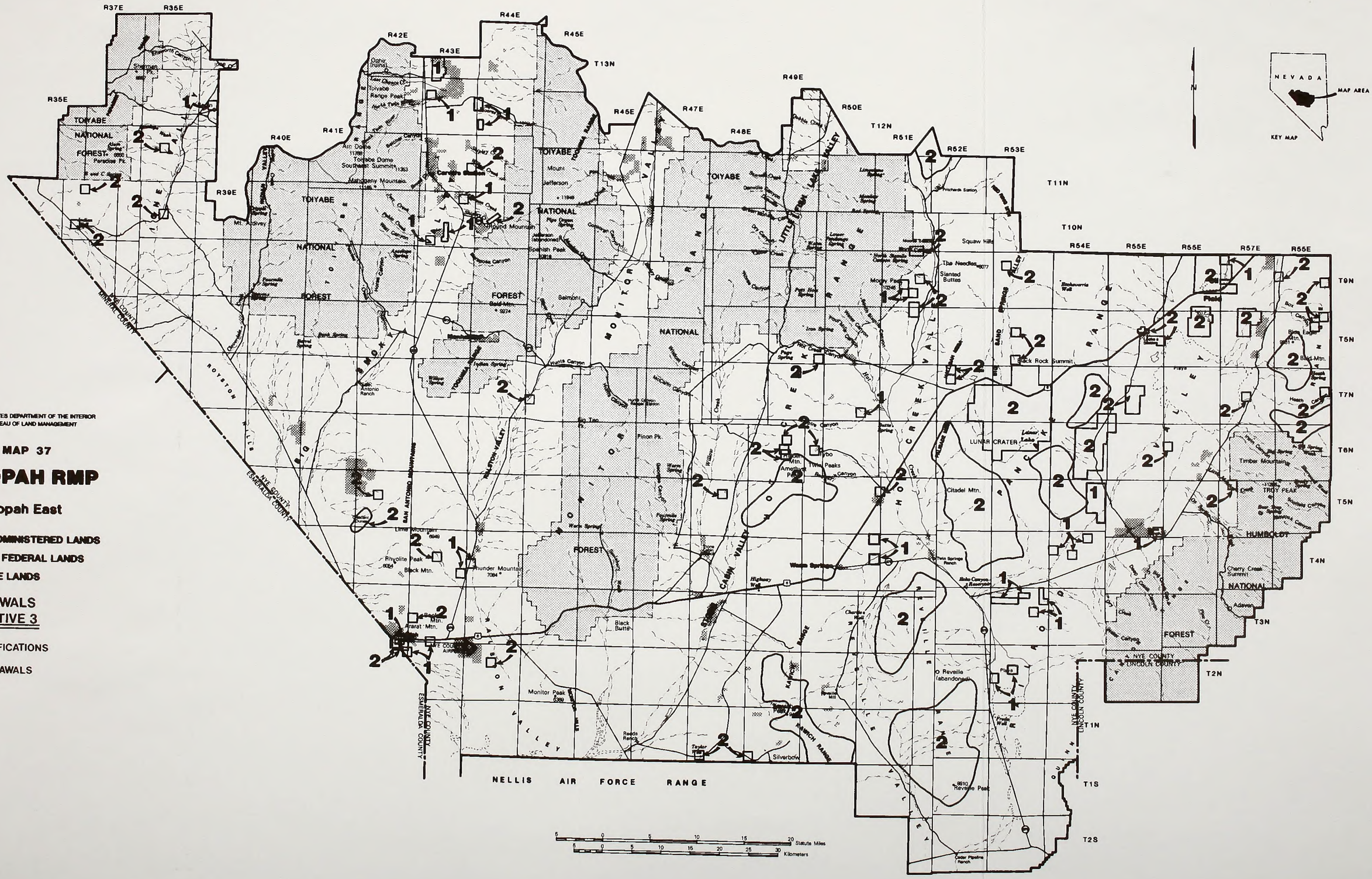
TONOPAH RMP

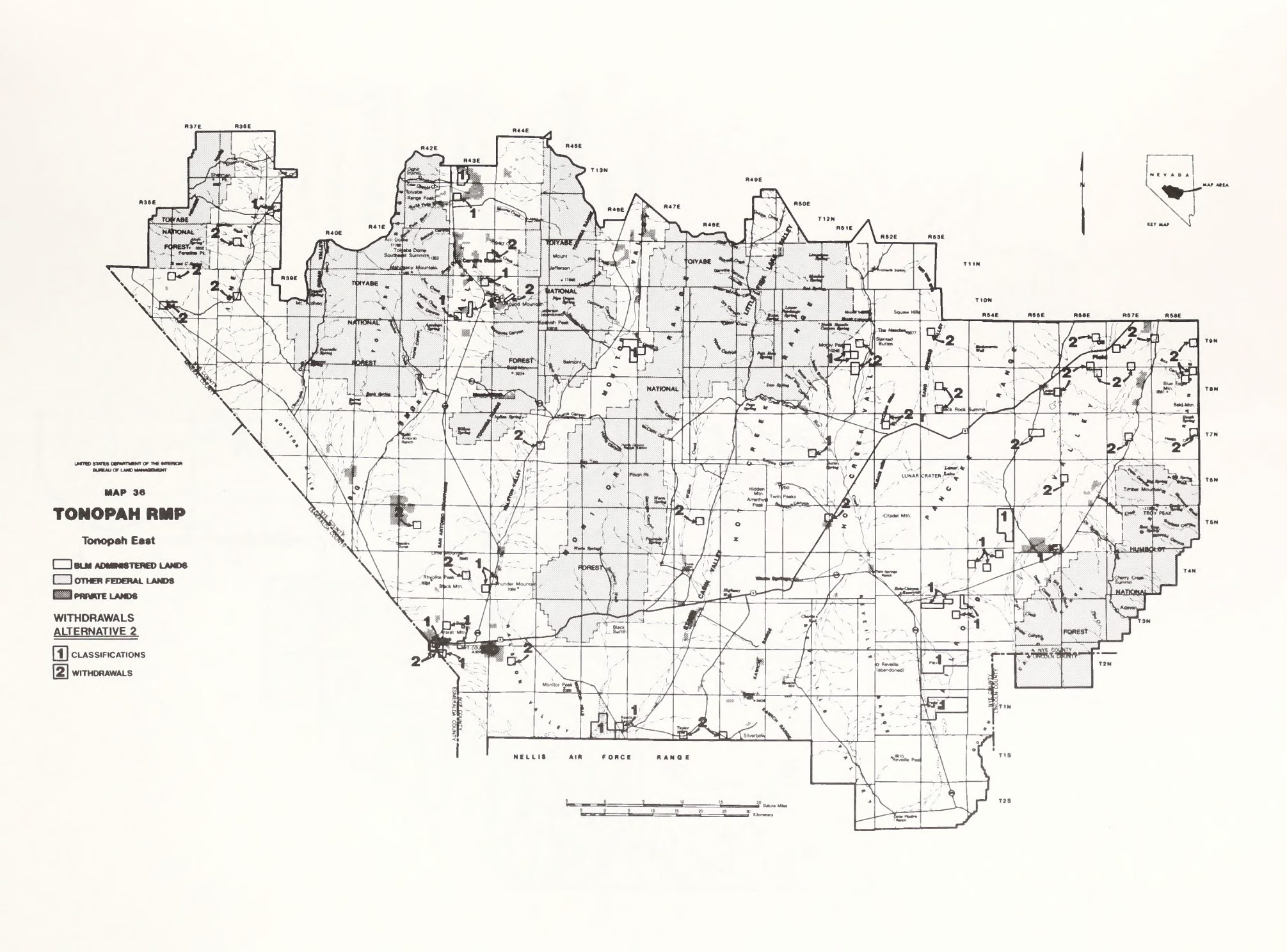
Tonopah East

BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS

WITHDRAWALS
ALTERNATIVE 3

1 CLASSIFICATIONS
2 WITHDRAWALS




UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 36
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
WITHDRAWALS
ALTERNATIVE 2
1 CLASSIFICATIONS
2 WITHDRAWALS
NEVADA
MAP AREA
KEY MAP
NELLIS AIR FORCE RANGE
TOIYABE NATIONAL FOREST
MONITOR RANGE
TONOPAH
HUMBOLDT NATIONAL FOREST
NYE COUNTY
LINCOLN COUNTY
ESMERALDA COUNTY

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 39

TONOPAH RMP

Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

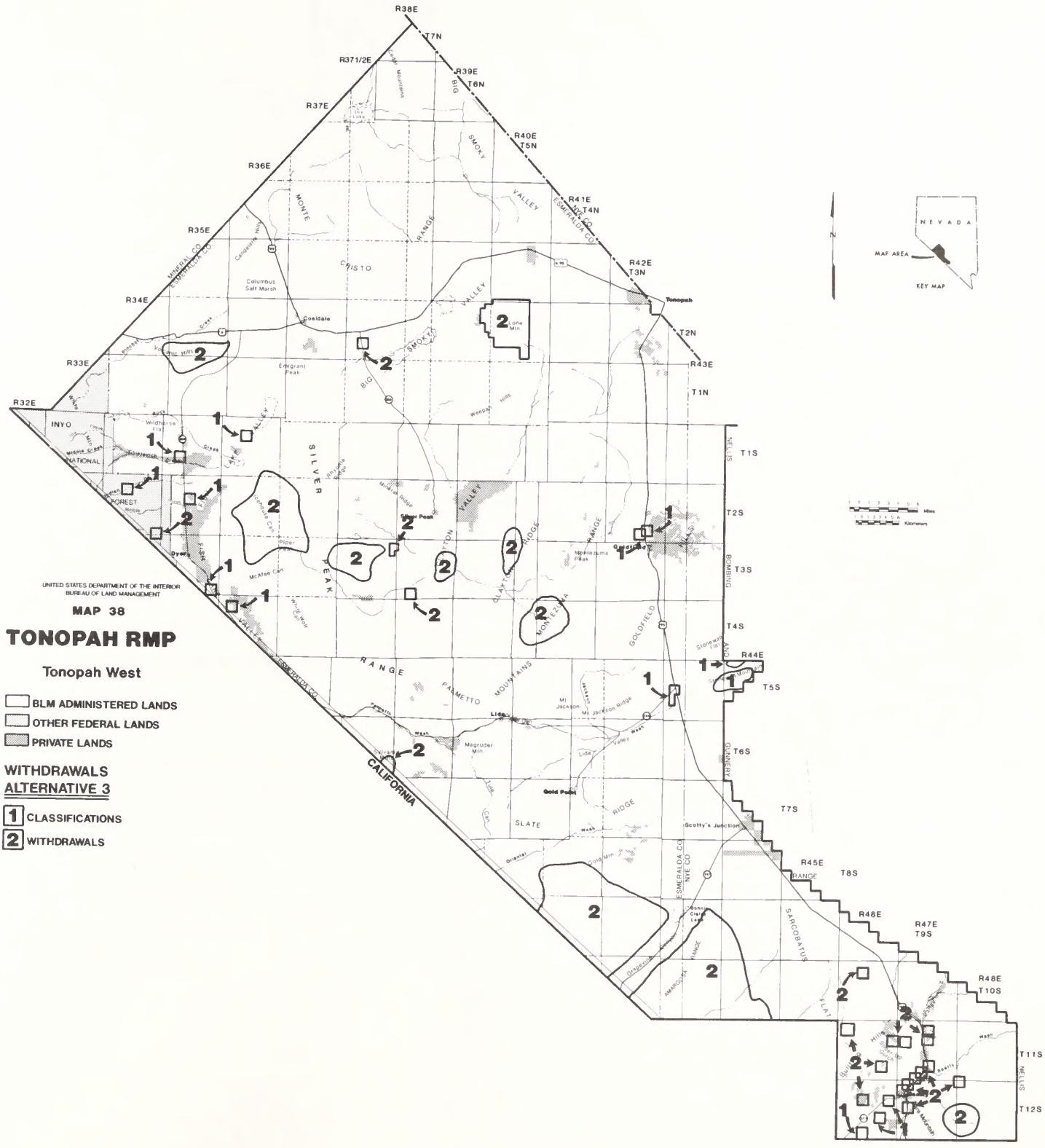
WITHDRAWALS
ALTERNATIVE 4

- 1 CLASSIFICATIONS
- 2 WITHDRAWALS

NEVADA — MAP AREA — KEY MAP

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 38
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
WITHDRAWALS
ALTERNATIVE 3
1 CLASSIFICATIONS
2 WITHDRAWALS
NEVADA
MAP AREA
KEY MAP
CALIFORNIA
Tonopah
Coaldale
Goldfield
Lida
Gold Point
Scotty's Junction
Columbus Salt Marsh
Emigrant Peak
Silver Peak
Magruder Mtn.
Mt Jackson
Lone Mtn.
Wildhorse Flat
Dyers
Piper Peak
McAfee Can
Montezuma Peak
Stonewall Flat
Oasis Mountains
Miles
Kilometers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 41

TONOPAH RMP

Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

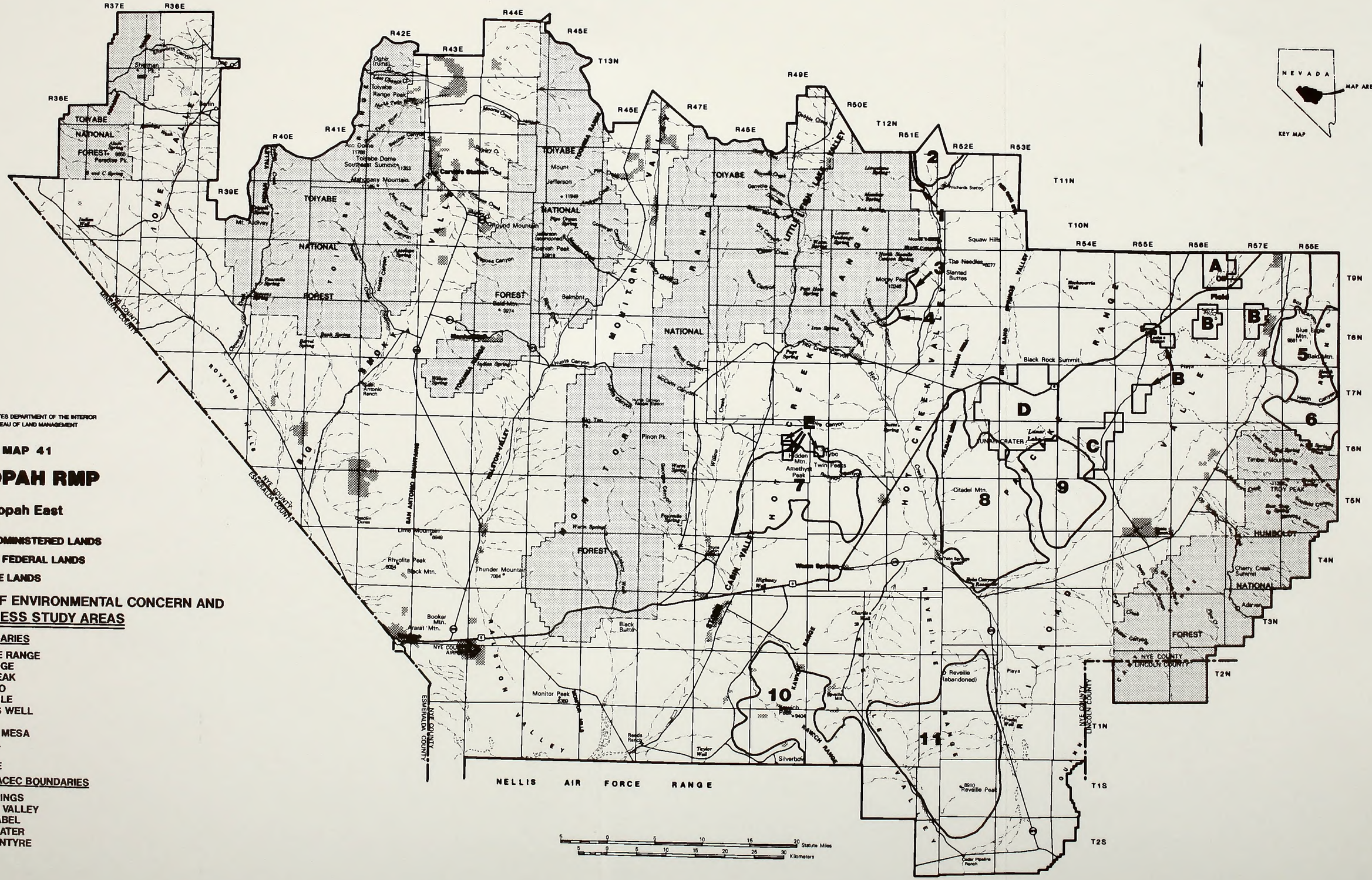
AREAS OF ENVIRONMENTAL CONCERN AND WILDERNESS STUDY AREAS

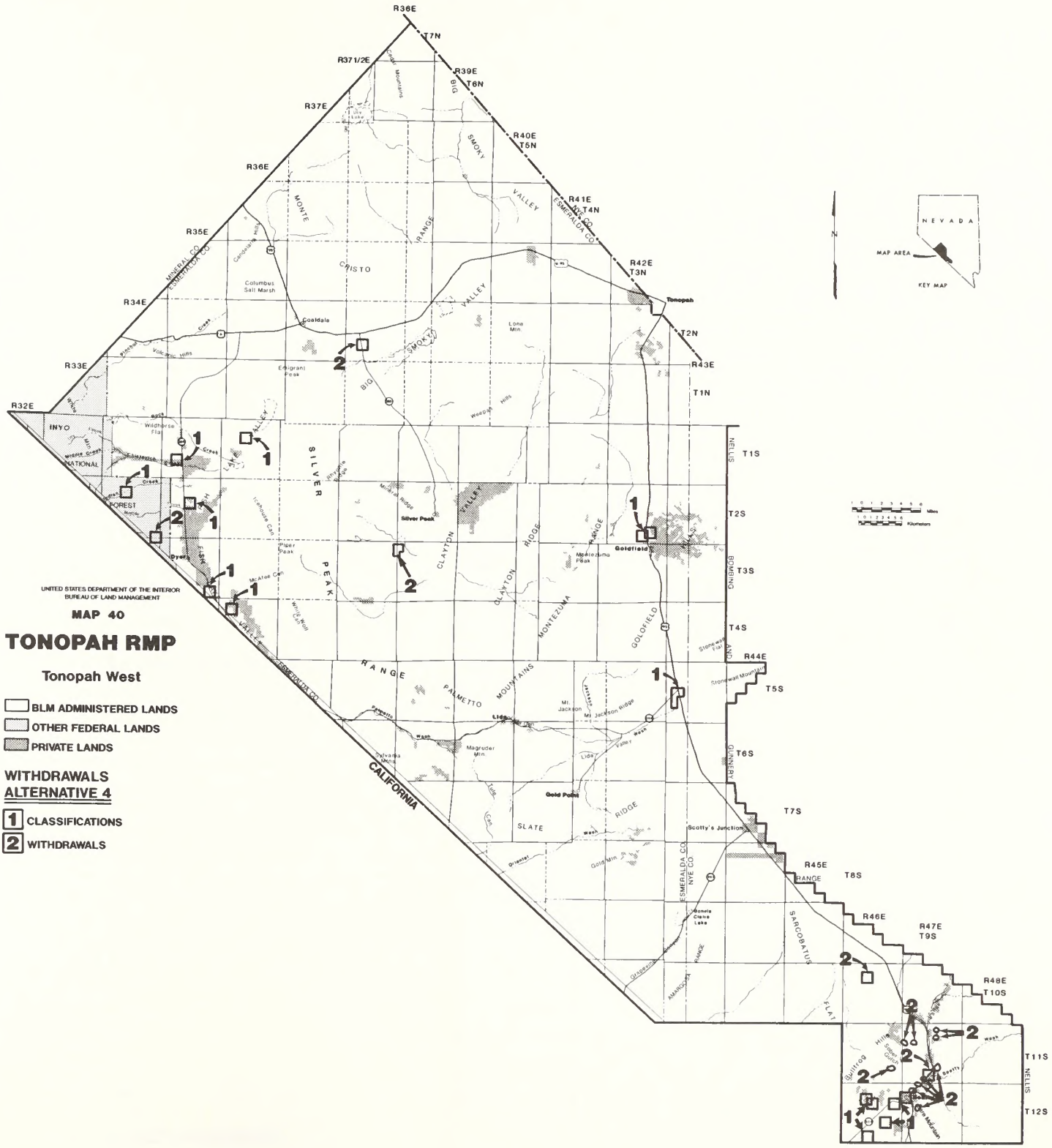
WSA BOUNDARIES

1 ANTELOPE RANGE
2 PARK RANGE
3 MOREY PEAK
4 FANDANGO
5 BLUE EAGLE
6 RIORDANS WELL
7 RAWHIDE
8 PALISADE MESA
9 THE WALL
10 KAWICH
11 REVEILLE

POTENTIAL ACEC BOUNDARIES

A TRAP SPRINGS
B RAILROAD VALLEY
C STORMY ABEL
D LUNAR CRATER
E TYBO–McINTYRE




UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 40
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
WITHDRAWALS
ALTERNATIVE 4
1 CLASSIFICATIONS
2 WITHDRAWALS
NEVADA
MAP AREA
KEY MAP
CALIFORNIA
Tonopah
Goldfield
Silver Peak
Lida
Gold Point
Scotty's Junction
Coaldale
Dyers
Columbus Salt Marsh
Emigrant Peak
Lone Mtn.
Piper Peak
Magruder Mtn.
Mt. Jackson
Mt. Jackson Ridge
Montezuma Peak
Stonewall Mountain
Bonnie Claire Lake
Wildhorse Flat
Volcanic Hills
Weepah Hills
Mineral Ridge
Cedar Mountains
Lily Lake
Candelaria Hills
Sylvania Mtns.
Gold Mtn.
Grapevine Mountains
Bullfrog Hills
Sobek Gulch
Beatty Wash
Gunnery Range
Nellis Bombing and Gunnery Range
Sarcobatus Flat
Amargosa Range
Silver Peak Range
Palmetto Mountains
Montezuma Range
Golofield Hills
Clayton Ridge
Clayton Valley
Big Smoky Valley
Monte Cristo Range
Silver Peak
Lake Valley
Fish Lake Valley
Ivanhoe Can
McAfee Can
Pinchot Creek
Wildhorse Creek
Mineral Ridge
Rhyolite Ridge
Inyo National Forest
Mineral Co.
Esmeralda Co.
Nye Co.
Nellis
Bombing
Gunnery
R32E
R33E
R34E
R35E
R36E
R37E
R37 1/2E
R39E
R40E
R41E
R42E
R43E
R44E
R45E
R46E
R47E
R48E
T1N
T2N
T3N
T4N
T5N
T6N
T7N
T1S
T2S
T3S
T4S
T5S
T6S
T7S
T8S
T9S
T10S
T11S
T12S
Miles
Kilometers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 43

TONOPAH RMP

Tonopah East

BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS

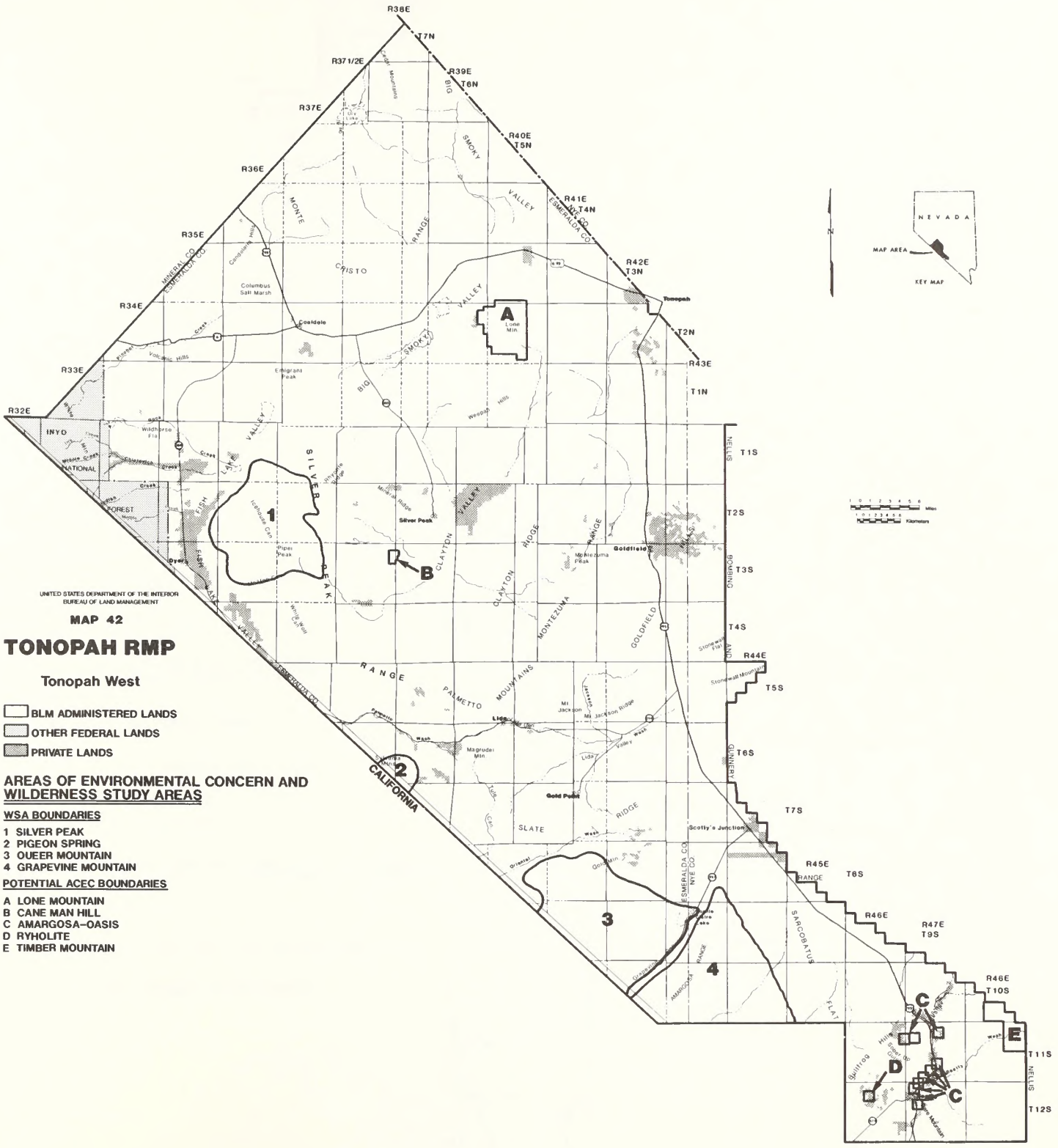
RECREATION OPPORTUNITY SPECTRUM

A PRIMITIVE
B SEMI PRIMITIVE NON-MOTORIZED
C SEMI PRIMITIVE MOTORIZED

NEVADA
MAP AREA
KEY MAP

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 42

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

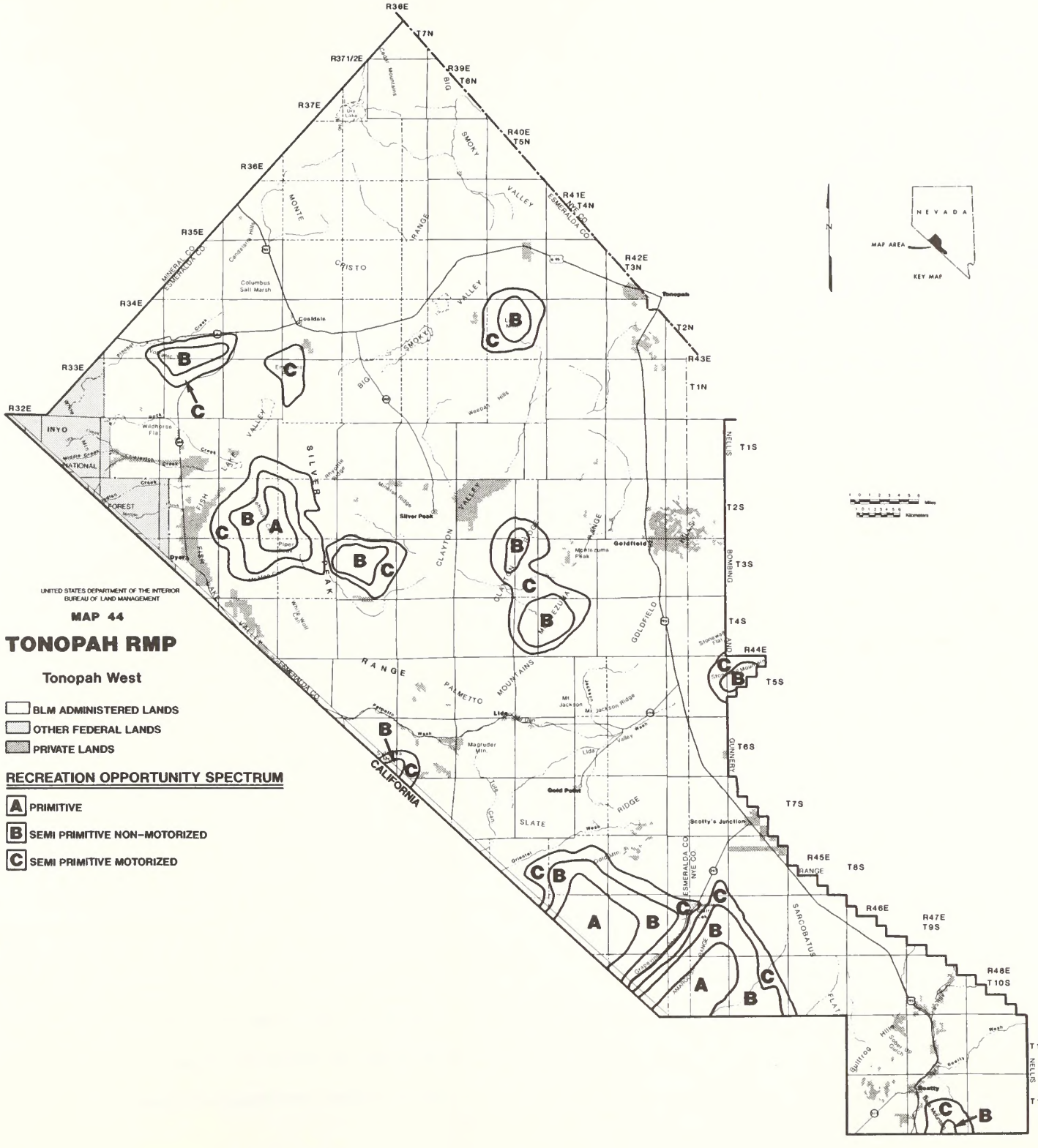
AREAS OF ENVIRONMENTAL CONCERN AND WILDERNESS STUDY AREAS

WSA BOUNDARIES

1 SILVER PEAK
2 PIGEON SPRING
3 QUEER MOUNTAIN
4 GRAPEVINE MOUNTAIN

POTENTIAL ACEC BOUNDARIES

A LONE MOUNTAIN
B CANE MAN HILL
C AMARGOSA–OASIS
D RYHOLITE
E TIMBER MOUNTAIN



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 44

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

RECREATION OPPORTUNITY SPECTRUM

- A PRIMITIVE
- B SEMI PRIMITIVE NON-MOTORIZED
- C SEMI PRIMITIVE MOTORIZED

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 45

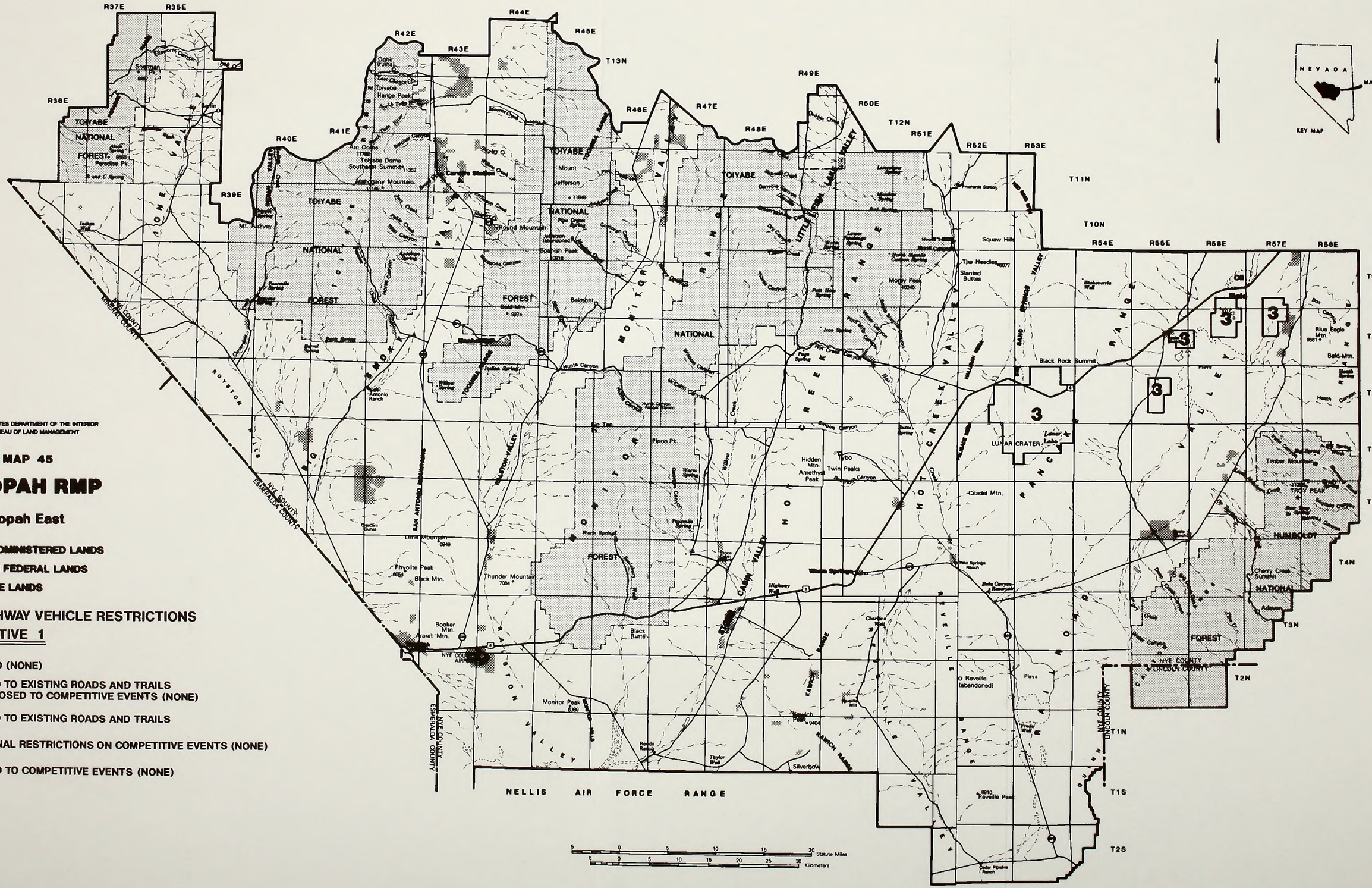
TONOPAH RMP

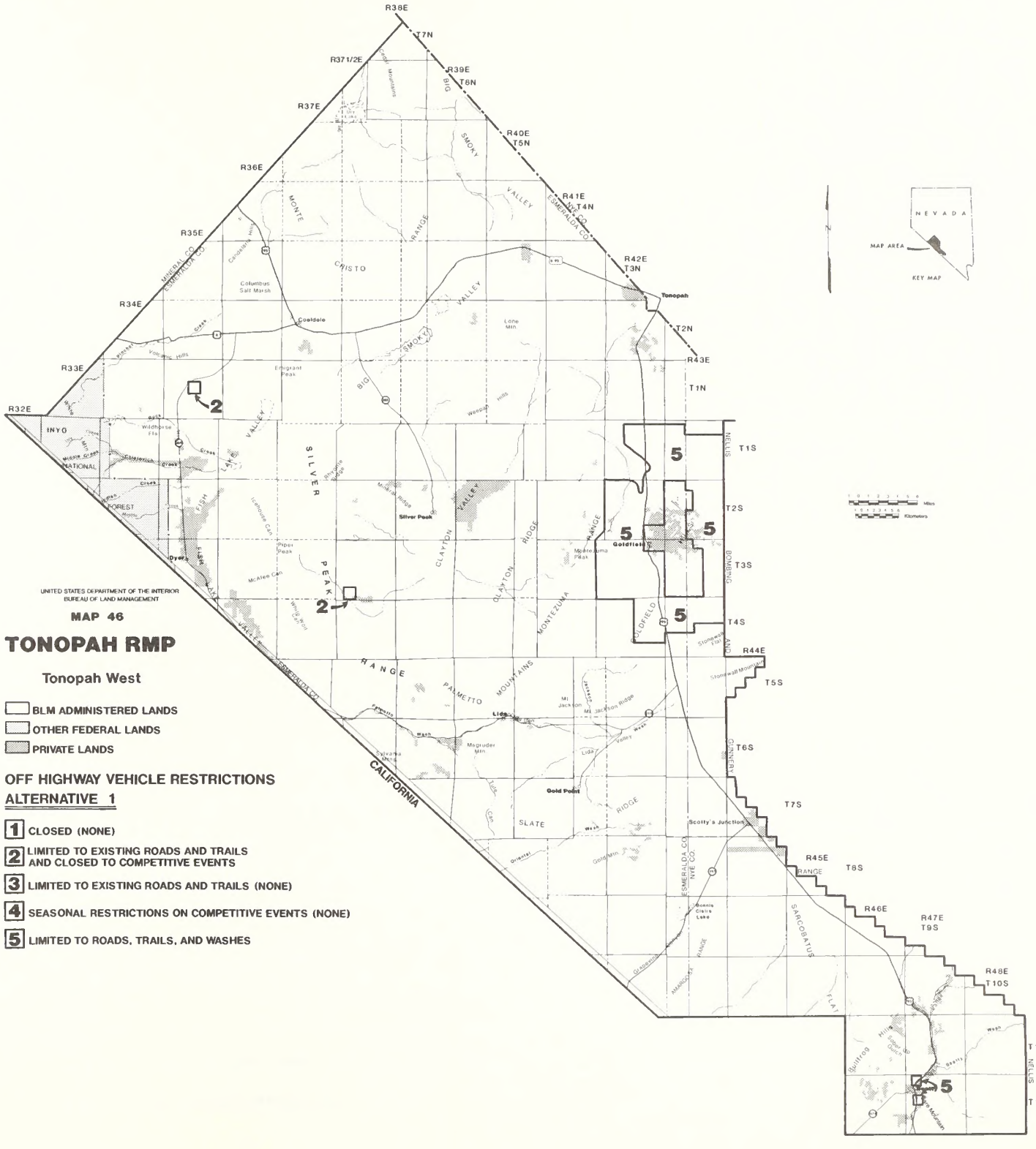
Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

OFF HIGHWAY VEHICLE RESTRICTIONS
ALTERNATIVE 1

1. CLOSED (NONE)
2. LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS (NONE)
3. LIMITED TO EXISTING ROADS AND TRAILS
4. SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS (NONE)
5. CLOSED TO COMPETITIVE EVENTS (NONE)





UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 46

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

OFF HIGHWAY VEHICLE RESTRICTIONS
ALTERNATIVE 1

1. CLOSED (NONE)
2. LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS
3. LIMITED TO EXISTING ROADS AND TRAILS (NONE)
4. SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS (NONE)
5. LIMITED TO ROADS, TRAILS, AND WASHES

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 47

TONOPAH RMP

Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

OFF HIGHWAY VEHICLE RESTRICTIONS

ALTERNATIVE 2

1. CLOSED (NONE)
2. LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS (NONE)
3. LIMITED TO EXISTING ROADS AND TRAILS
4. SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS
5. CLOSED TO COMPETITIVE EVENTS (NONE)

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 48
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
OFF HIGHWAY VEHICLE RESTRICTIONS
ALTERNATIVE 2
1 CLOSED (NONE)
2 LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS
3 LIMITED TO EXISTING ROADS AND TRAILS
4 SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS (NONE)
5 CLOSED TO COMPETITIVE EVENTS (NONE)
NEVADA
MAP AREA
KEY MAP
CALIFORNIA
Tonopah
Goldfield
Silver Peak
Lida
Gold Point
Scotty's Junction
Coaldale
Dyers
Columbus Salt Marsh
Emigrant Peak
Piper Peak
Magruder Mtn.
Mt Jackson
Montezuma Peak
Bonnie Claire Lake
Sylvania Mtns
Wildhorse Flat
Volcanic Hills
Candelaria Hills
Cedar Mountains
Weepah Hills
Mineral Ridge
Icehouse Can
McAfee Can
Stonewall Flat
Stonewall Mountain
Mt Jackson Ridge
Lida Valley Wash
Gold Mtn
Grapevine
Buttrog Hills
Spear Up Gulch
Beatty
Mt Jackson
R38E
R37 1/2E
R37E
R36E
R35E
R34E
R33E
R32E
R39E
R40E
R41E
R42E
R43E
R44E
R45E
R46E
R47E
R48E
T7N
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
T6S
T7S
T8S
T9S
T10S
T11S
T12S
MINERAL CO
ESMERALDA CO
NYE CO
NELLIS
BOMBING
GUNNERY
RANGE
BIG SMOKY VALLEY
MONTE CRISTO RANGE
SILVER PEAK
CLAYTON VALLEY
CLAYTON RIDGE
MONTEZUMA RANGE
GOLDFIELD HILLS
PALMETTO MOUNTAINS
SLATE RIDGE
SARCOBATUS FLAT
AMARGOSA RANGE
FISH LAKE VALLEY
INYO NATIONAL FOREST
Miles
Kilometers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 49

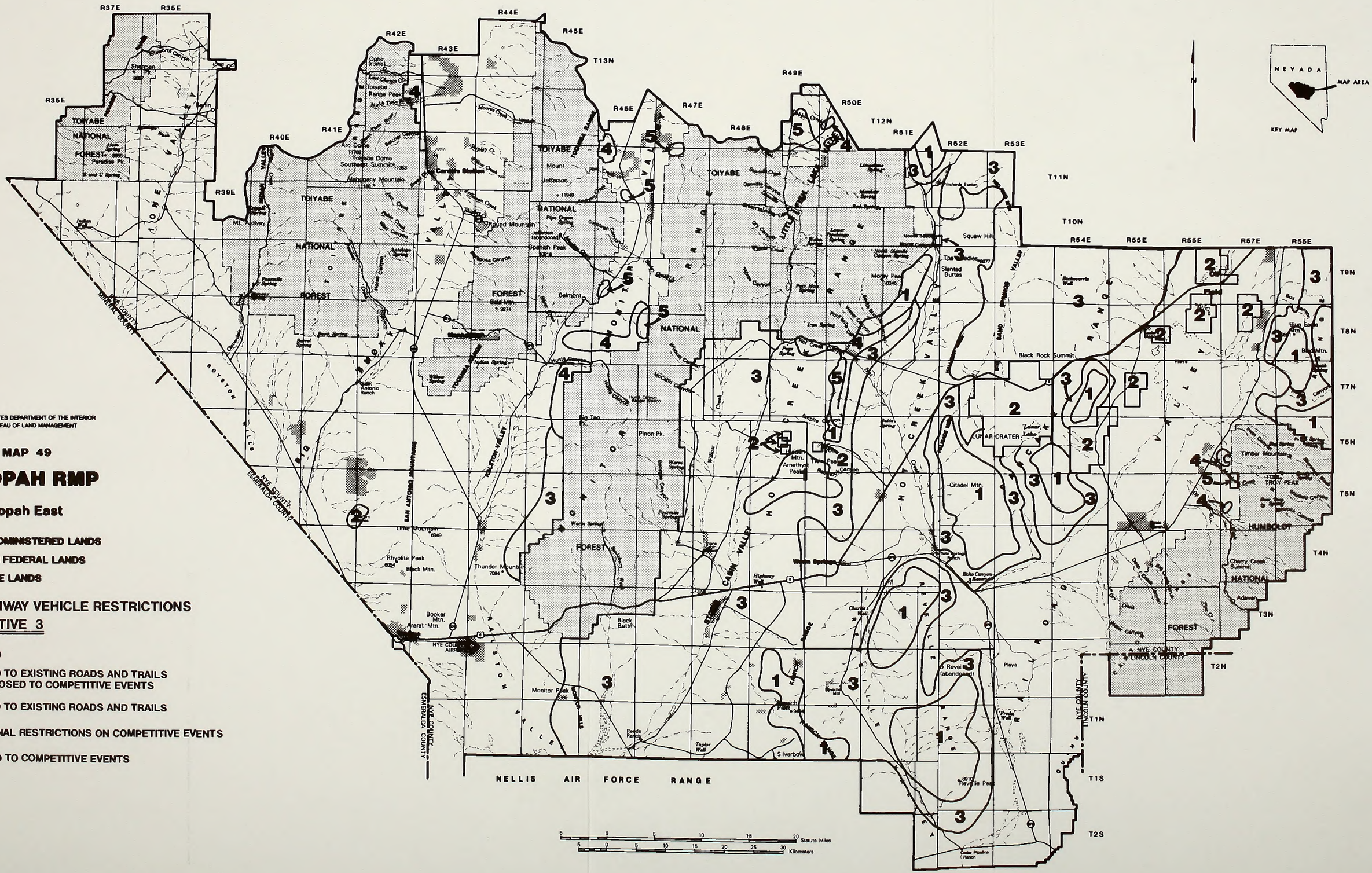
TONOPAH RMP

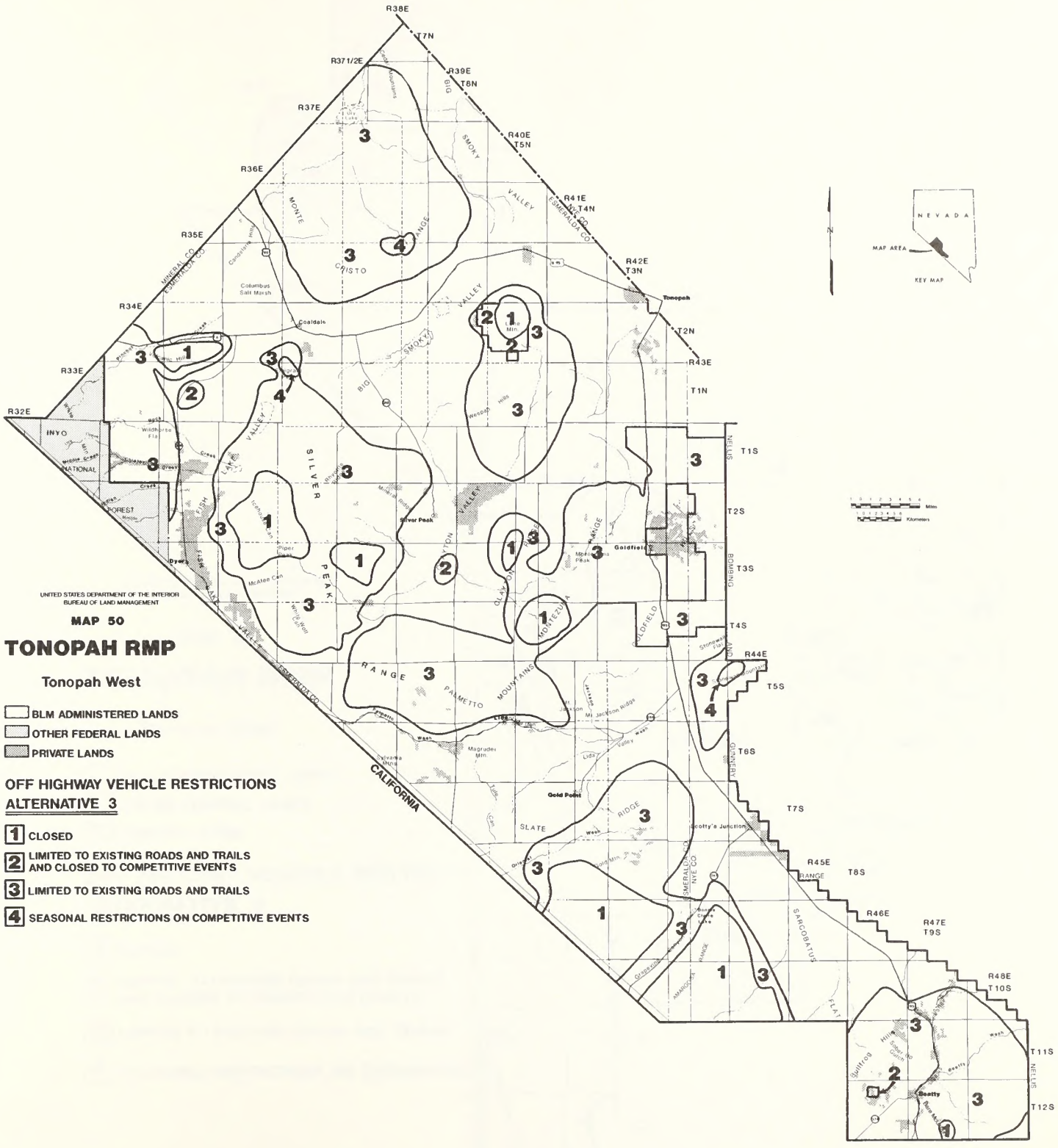
Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

OFF HIGHWAY VEHICLE RESTRICTIONS
ALTERNATIVE 3

1. CLOSED
2. LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS
3. LIMITED TO EXISTING ROADS AND TRAILS
4. SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS
5. CLOSED TO COMPETITIVE EVENTS




UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 50
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
OFF HIGHWAY VEHICLE RESTRICTIONS
ALTERNATIVE 3
1 CLOSED
2 LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS
3 LIMITED TO EXISTING ROADS AND TRAILS
4 SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS
NEVADA
MAP AREA
KEY MAP
CALIFORNIA
Tonopah
Goldfield
Gold Point
Scotty's Junction
Beatty
Silver Peak
Coaldale
Columbus Salt Marsh
INYO NATIONAL FOREST
MONTE CRISTO RANGE
BIG SMOKY VALLEY
SILVER PEAK
FISH LAKE VALLEY
CLAYTON VALLEY
MONTEZUMA RANGE
GOLDFIELD
RANGE PALMETTO MOUNTAINS
SLATE RIDGE
SARCOBATUS FLAT
NELLIS BOMBING AND GUNNERY RANGE
MINERAL CO
ESMERALDA CO
NYE CO
R38E
R37 1/2E
R37E
R36E
R35E
R34E
R33E
R32E
R39E
R40E
R41E
R42E
R43E
R44E
R45E
R46E
R47E
R48E
T7N
T8N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
T6S
T7S
T8S
T9S
T10S
T11S
T12S

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 51

TONOPAH RMP

Tonopah East

BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS

OFF HIGHWAY VEHICLE RESTRICTIONS
ALTERNATIVE 4

1 CLOSED

2 LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS

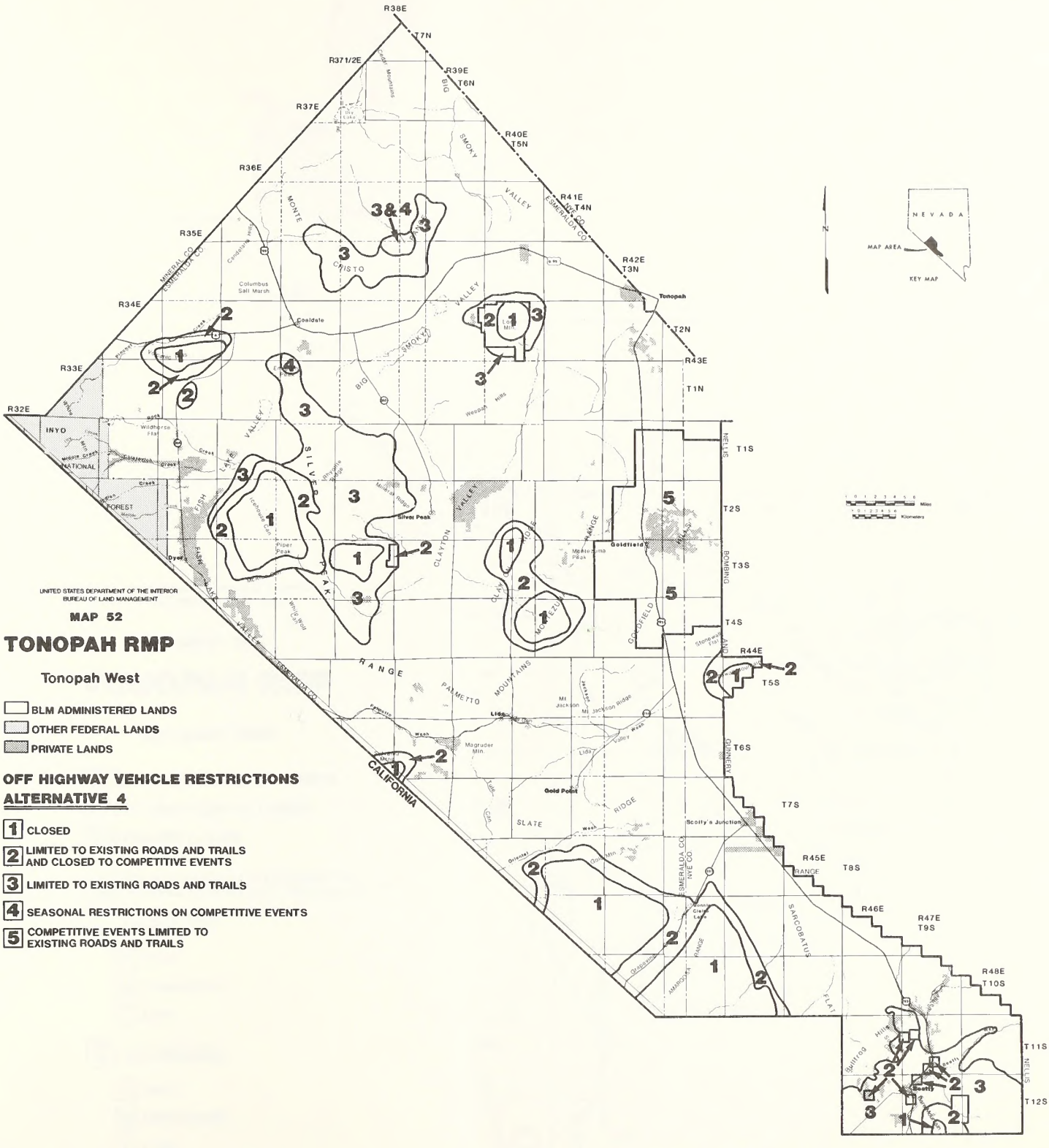
3 LIMITED TO EXISTING ROADS AND TRAILS

4 SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS

NEVADA
MAP AREA
KEY MAP

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 52

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

OFF HIGHWAY VEHICLE RESTRICTIONS
ALTERNATIVE 4

1. CLOSED
2. LIMITED TO EXISTING ROADS AND TRAILS AND CLOSED TO COMPETITIVE EVENTS
3. LIMITED TO EXISTING ROADS AND TRAILS
4. SEASONAL RESTRICTIONS ON COMPETITIVE EVENTS
5. COMPETITIVE EVENTS LIMITED TO EXISTING ROADS AND TRAILS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 53

TONOPAH RMP

Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

FLUID MINERAL POTENTIAL

1 OIL AND GAS

- H HIGH
- M MODERATE
- L LOW

2 GEOTHERMAL

- H HIGH
- M MODERATE
- L LOW

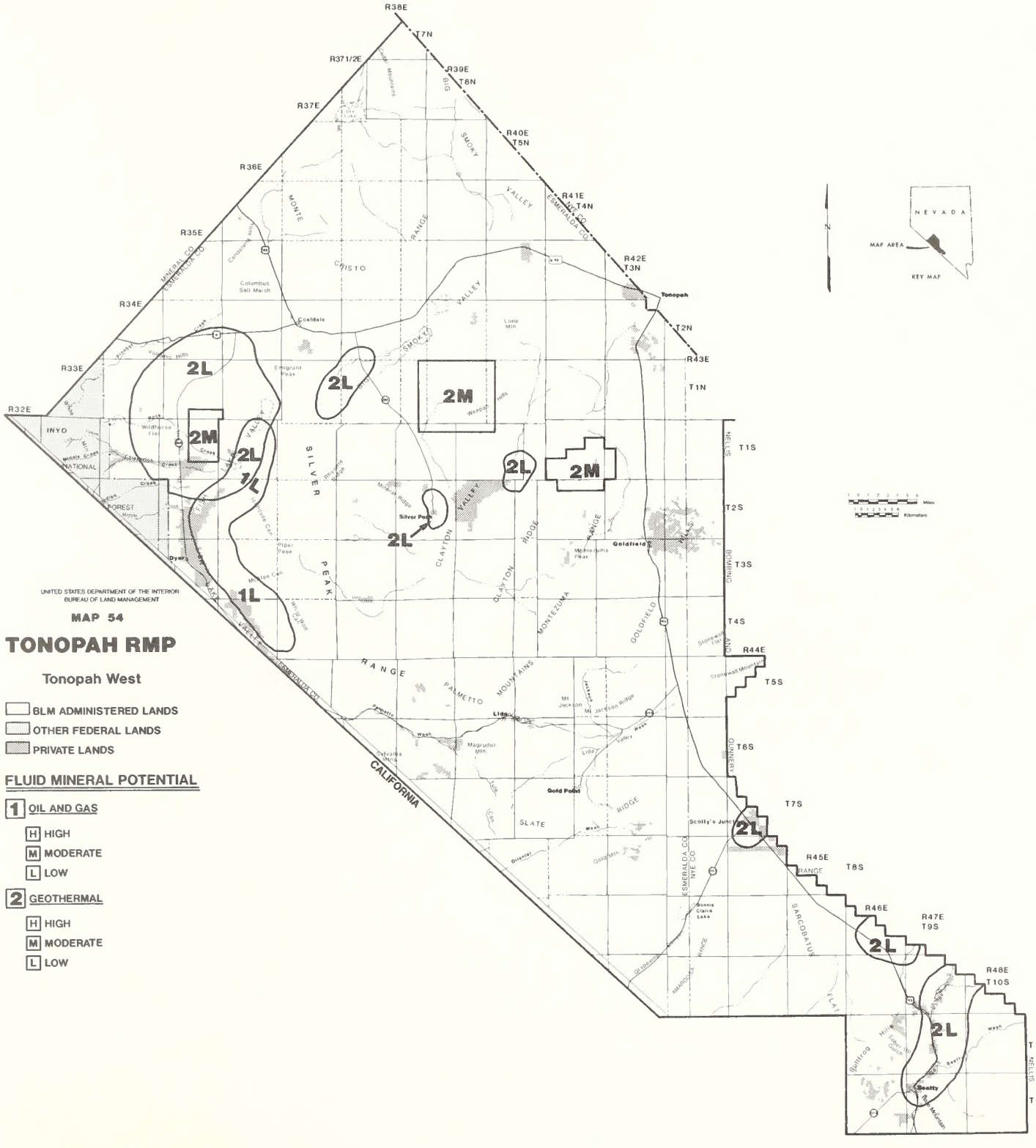
NEVADA — MAP AREA — KEY MAP

N

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 54

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

FLUID MINERAL POTENTIAL

1 OIL AND GAS

- H HIGH
- M MODERATE
- L LOW

2 GEOTHERMAL

- H HIGH
- M MODERATE
- L LOW

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 55

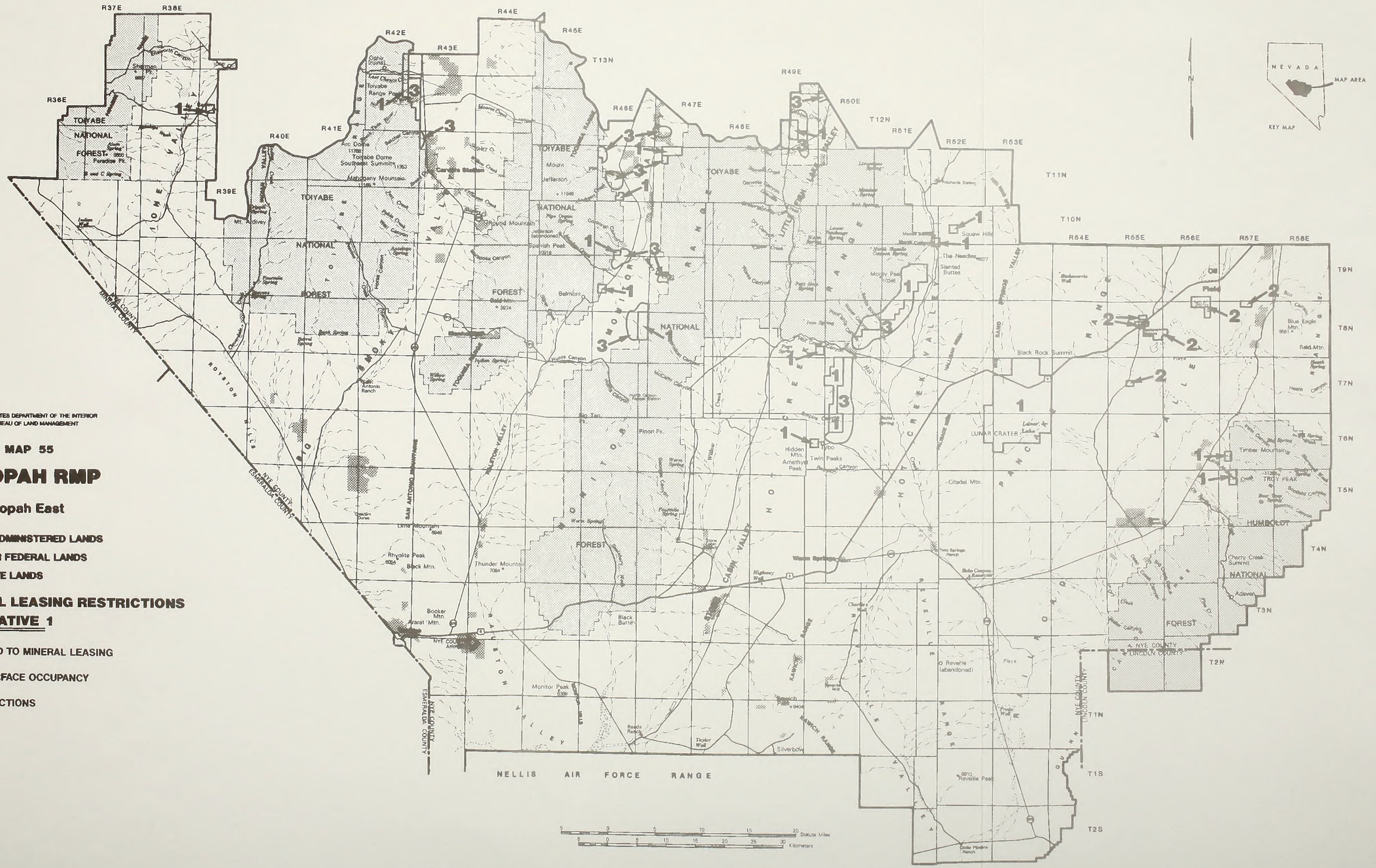
TONOPAH RMP

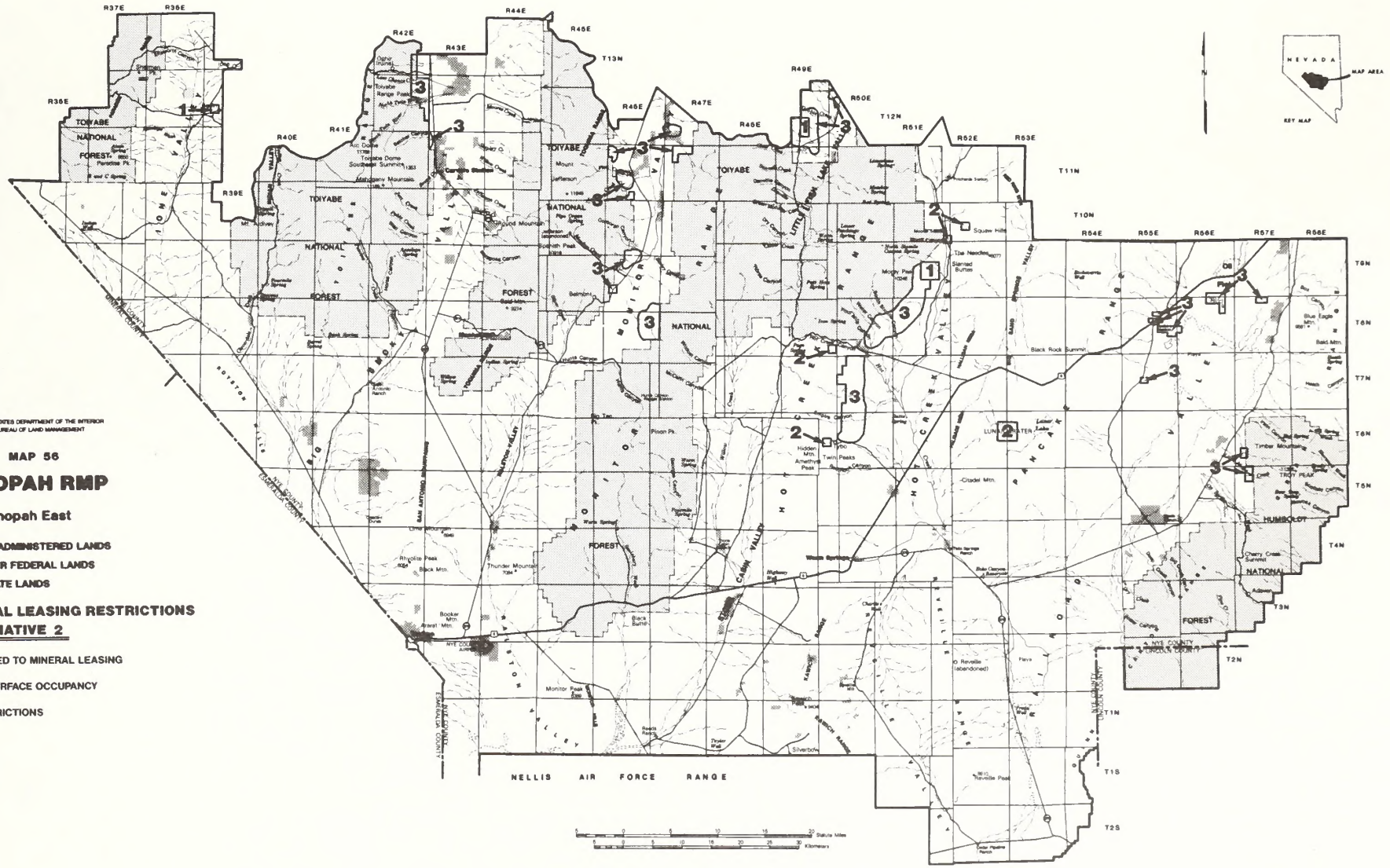
Tonopah East

BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS

MINERAL LEASING RESTRICTIONS
ALTERNATIVE 1

1 CLOSED TO MINERAL LEASING
2 NO SURFACE OCCUPANCY
3 RESTRICTIONS




UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 56
TONOPAH RMP
Tonopah East
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
MINERAL LEASING RESTRICTIONS
ALTERNATIVE 2
1 CLOSED TO MINERAL LEASING
2 NO SURFACE OCCUPANCY
3 RESTRICTIONS
NELLIS AIR FORCE RANGE
NEVADA
MAP AREA
KEY MAP
TOIYABE NATIONAL FOREST
HUMBOLDT NATIONAL FOREST
NYE COUNTY
LINCOLN COUNTY
ESMERALDA COUNTY
Statute Miles
Kilometers

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 57

TONOPAH RMP

Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

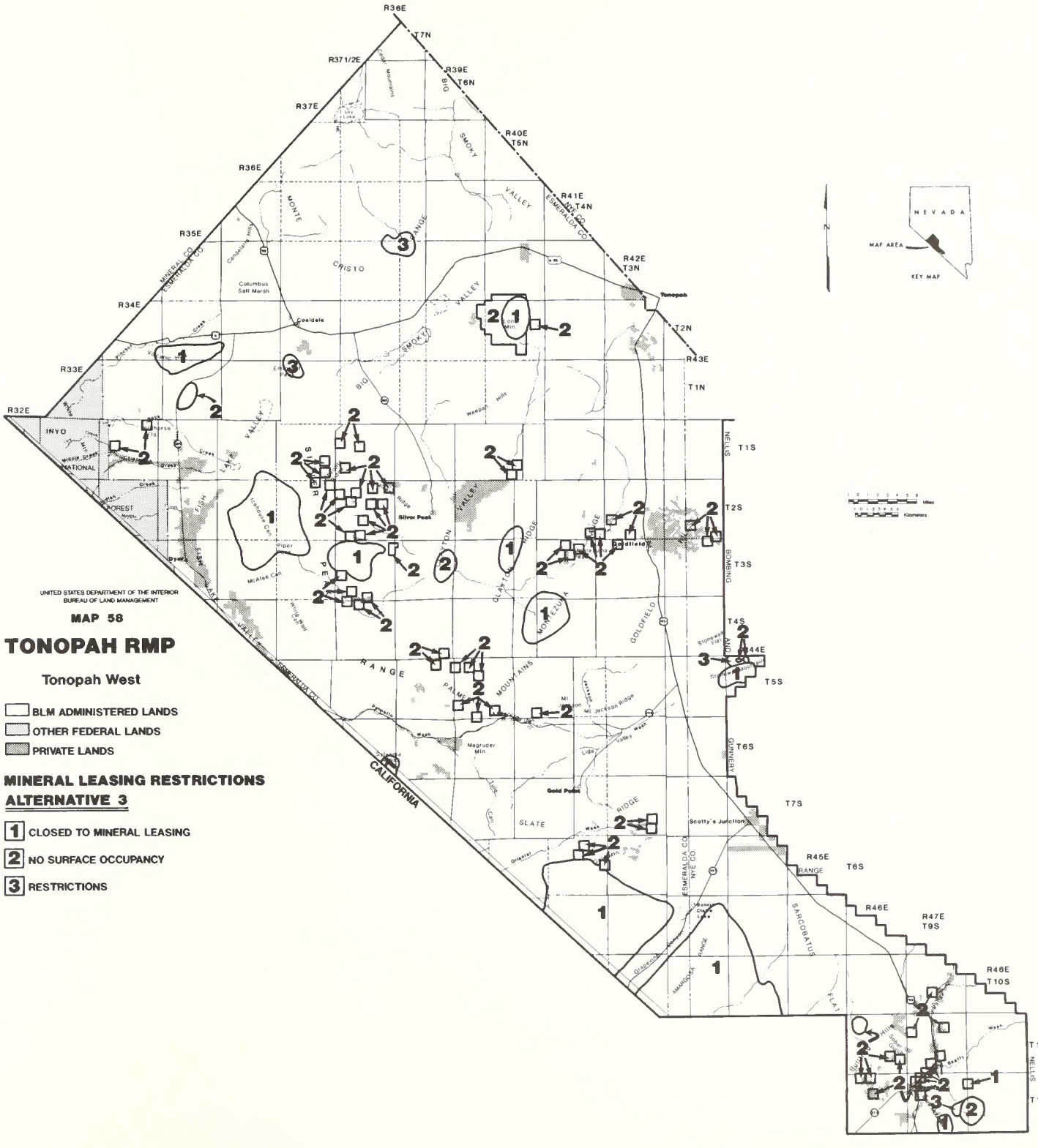
MINERAL LEASING RESTRICTIONS
ALTERNATIVE 3

1. CLOSED TO MINERAL LEASING
2. NO SURFACE OCCUPANCY
3. RESTRICTIONS

NEVADA
MAP AREA
KEY MAP
N

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers


R36E
T7N
R37 1/2E
R39E
T6N
R37E
R40E
T5N
R36E
R41E
T4N
R35E
R42E
T3N
R34E
T2N
R43E
R33E
T1N
R32E
INYO
NATIONAL
FOREST
CALIFORNIA
NEVADA
MAP AREA
KEY MAP
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 58
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
MINERAL LEASING RESTRICTIONS
ALTERNATIVE 3
1 CLOSED TO MINERAL LEASING
2 NO SURFACE OCCUPANCY
3 RESTRICTIONS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 59

TONOPAH RMP

Tonopah East

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

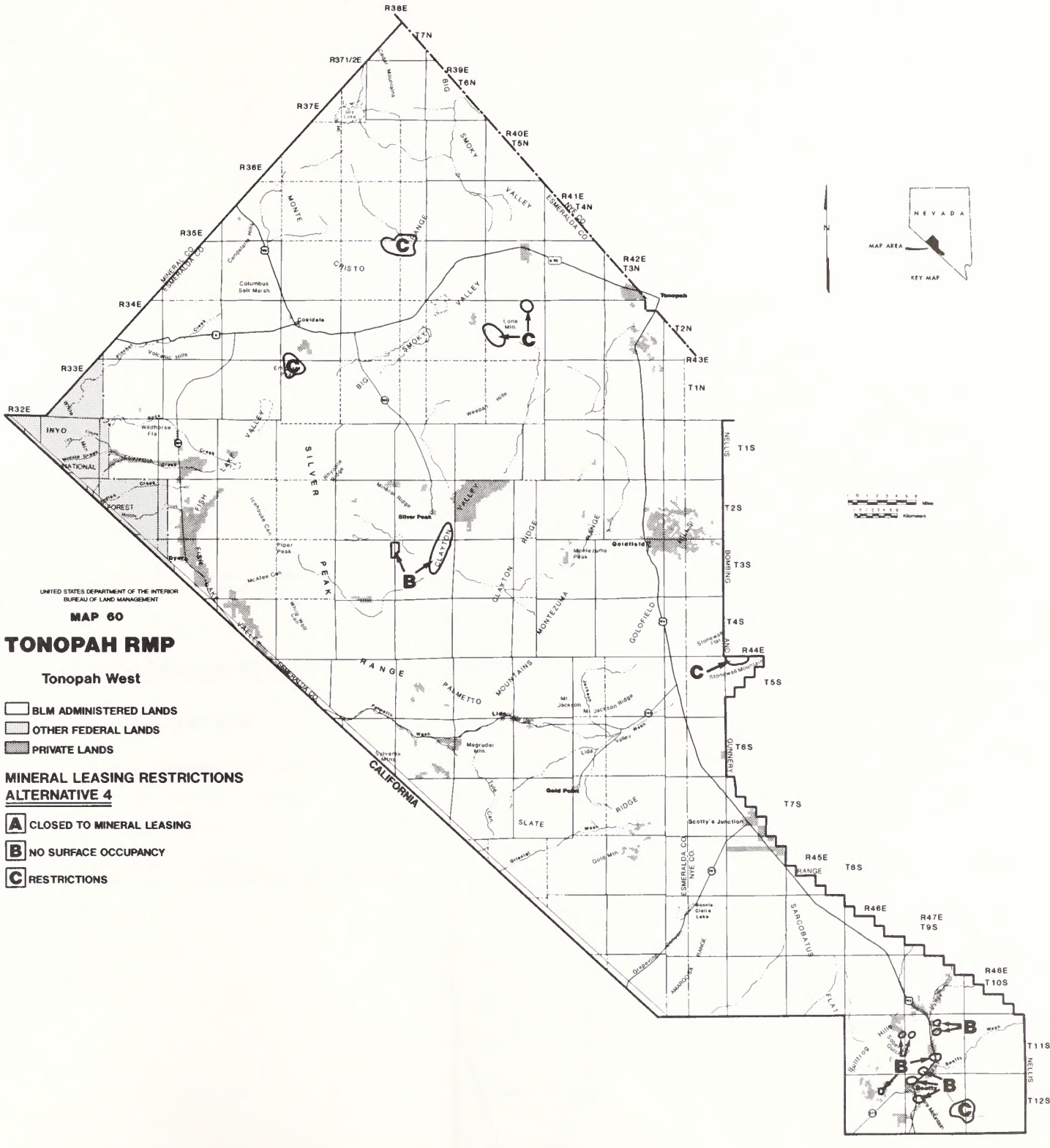
MINERAL LEASING RESTRICTIONS
ALTERNATIVE 4

- A CLOSED TO MINERAL LEASING
- B NO SUPFACE OCCUPANCY
- C RESTRICTIONS

NEVADA
MAP AREA
KEY MAP

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles
5 0 5 10 15 20 25 30 Kilometers



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 60

TONOPAH RMP

Tonopah West

- BLM ADMINISTERED LANDS
- OTHER FEDERAL LANDS
- PRIVATE LANDS

MINERAL LEASING RESTRICTIONS
ALTERNATIVE 4

- **A** CLOSED TO MINERAL LEASING
- **B** NO SURFACE OCCUPANCY
- **C** RESTRICTIONS

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 61

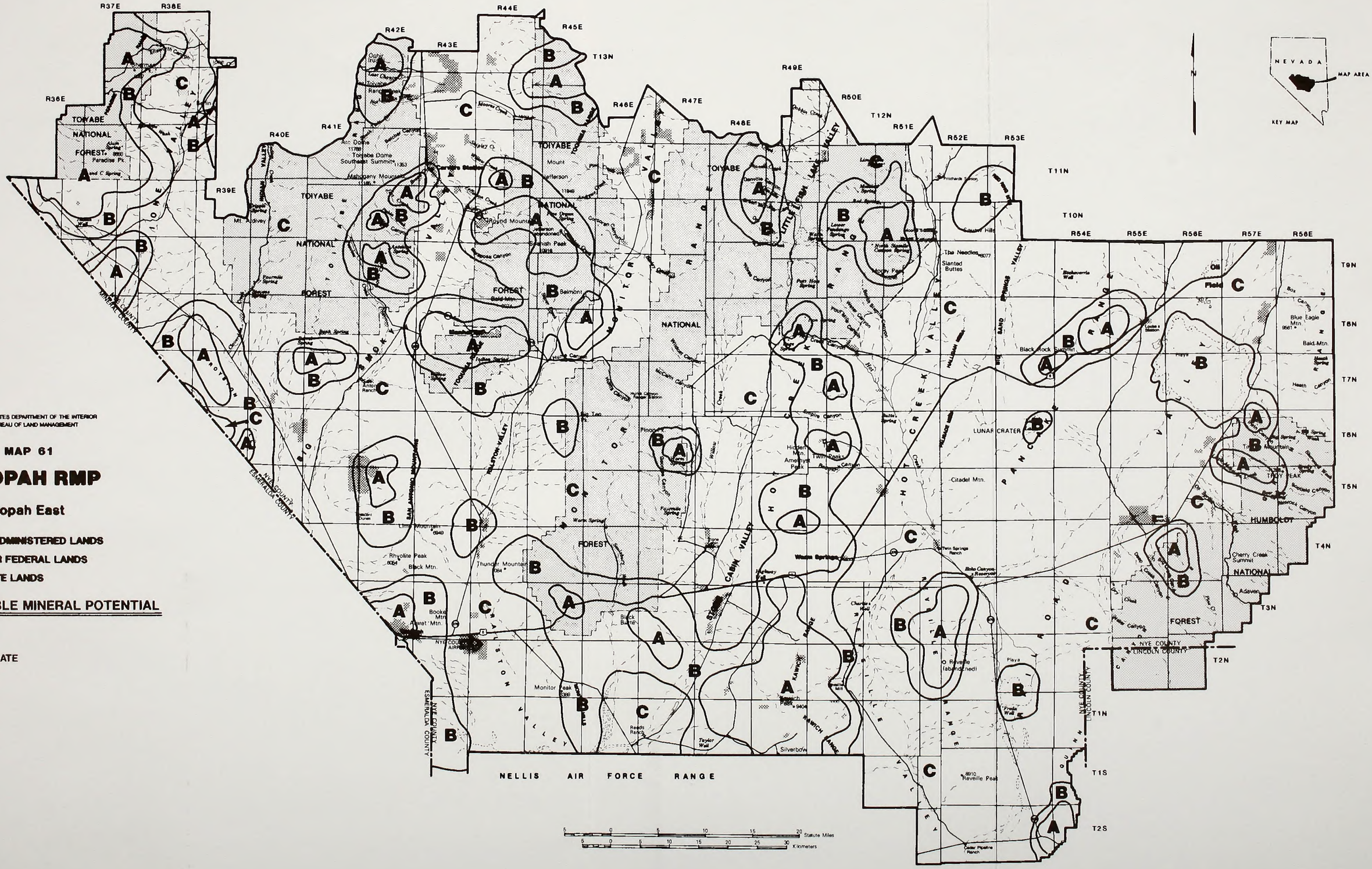
TONOPAH RMP

Tonopah East

BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS

LOCATABLE MINERAL POTENTIAL

A HIGH
B MODERATE
C LOW



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 62
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
LOCATABLE MINERAL POTENTIAL
A HIGH
B MODERATE
C LOW
NEVADA
MAP AREA
KEY MAP
N
Miles
Kilometers
R38E
T7N
R37 1/2E
R39E
T8N
R37E
R40E
T5N
R36E
R41E
T4N
R35E
R42E
T3N
R34E
T2N
R33E
R43E
T1N
R32E
T1S
T2S
T3S
T4S
R44E
T5S
T6S
T7S
R45E
T8S
R46E
R47E
T9S
R46E
T10S
T11S
T12S
MINERAL CO.
ESMERALDA CO.
NYE CO.
ESMERALDA CO.
INYO
NATIONAL
FOREST
CALIFORNIA
NELLIS
BOMBING
AND
GUNNERY
RANGE
Tonopah
Goldfield
Silver Peak
Coaldale
Columbus Salt Marsh
Volcanic Hills
Emigrant Peak
Lone Mtn.
Montezuma Peak
Mt Jackson
Mt Jackson Ridge
Stonewall Flat
Lida
Magruder Mtn.
Sylvania Mtns.
Gold Point
Gold Mtn.
Scotty's Junction
Bonnie Claire Lake
Dyer
Piper Peak
McAfee Can
MONTE
CRISTO
RANGE
BIG
SMOKY
VALLEY
SILVER
PEAK
RANGE
CLAYTON
VALLEY
RIDGE
MONTEZUMA
PALMETTO
MOUNTAINS
GOLDFIELD
SLATE
RIDGE
SARCOBATUS
FLAT
AMARGOSA
FISH
LAKE
VALLEY
Whiterse Flat
Oriental
Grapevine Canyon
Bullfrog
Hills
Sober Up Gulch
Beatty

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAP 63

TONOPAH RMP

Tonopah East

BLM ADMINISTERED LANDS

OTHER FEDERAL LANDS

PRIVATE LANDS

FIRE MANAGEMENT ZONES

1 FIRE MANAGEMENT ZONE 1

2 FIRE MANAGEMENT ZONE 2

NEVADA

MAP AREA

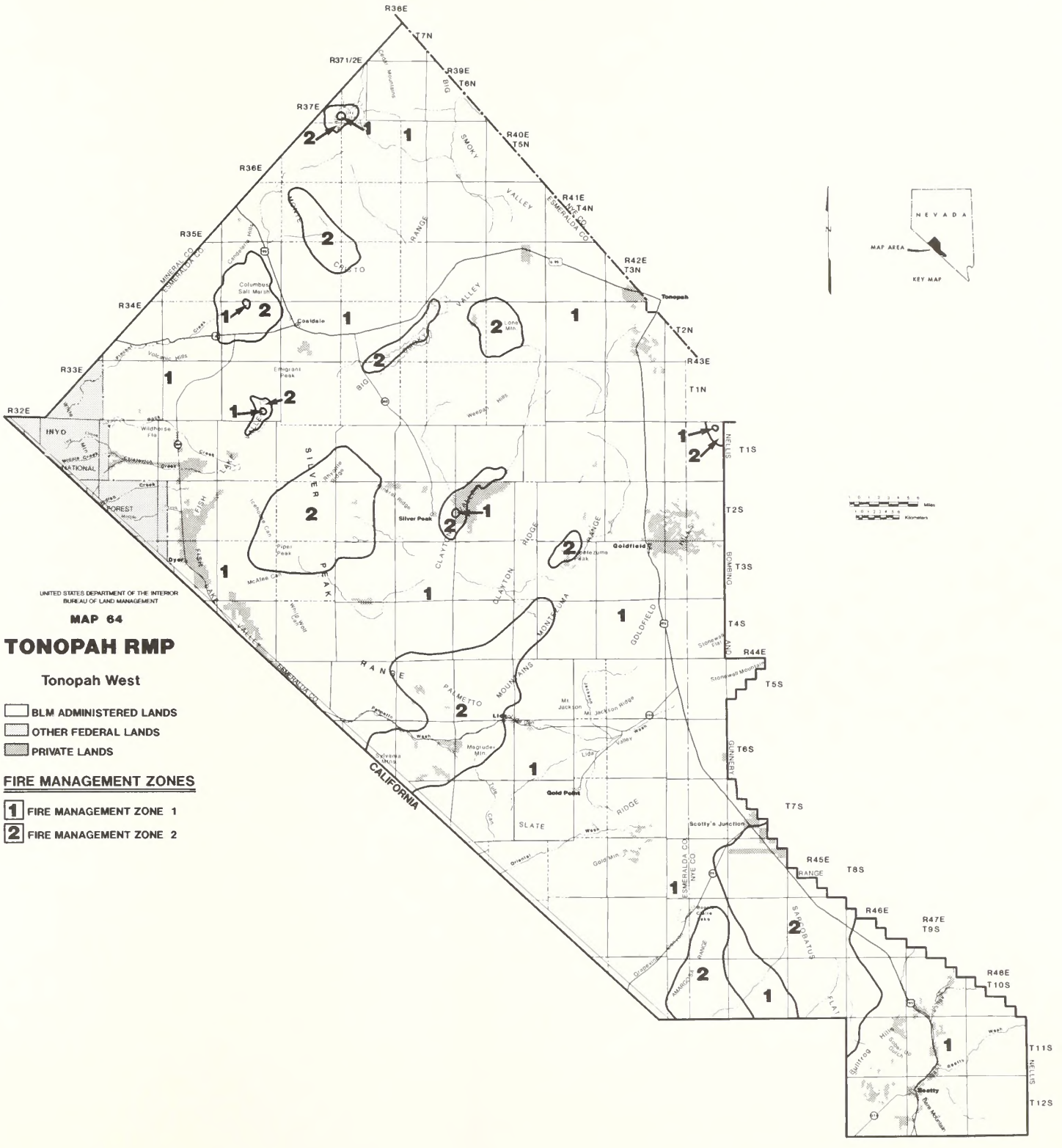
KEY MAP

N

NELLIS AIR FORCE RANGE

5 0 5 10 15 20 Statute Miles

5 0 5 10 15 20 25 30 Kilometers


R36E
T7N
R37 1/2E
R39E
T6N
R37E
R40E
T5N
R36E
R41E
T4N
R35E
R42E
T3N
R34E
T2N
R43E
R33E
T1N
R32E
INYO
NATIONAL
FOREST
Columbus Salt Marsh
Coaldale
Tonopah
Silver Peak
Goldfield
Dyer
Stonewall Mountain
Mt Jackson
Gold Point
Scotty's Junction
Scotty
CALIFORNIA
NEVADA
MAP AREA
KEY MAP
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MAP 64
TONOPAH RMP
Tonopah West
BLM ADMINISTERED LANDS
OTHER FEDERAL LANDS
PRIVATE LANDS
FIRE MANAGEMENT ZONES
1 FIRE MANAGEMENT ZONE 1
2 FIRE MANAGEMENT ZONE 2

88030329

Form 1279-3
(June 1984)

BORROWER

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